Exhibit AC17

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TECHNICAL REPORT

Title: Crowned Ridge Wind Final Operational Sound Test Data Review and Assessment

Project: Crowned Ridge Wind
Location: Watertown, SD
Prepared For: South Dakota Public Utilities Commission
Prepared By: David M. Hessler, P.E., INCE
Revision: A
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Reference No: TM-2176-012921-A

Attachments: - -

1.0 Introduction

Condition 26 of the "Final Decision and Order Granting Permit to Construct Facility; Notice of Entry" (Final Decision) issued by the South Dakota Public Utilities Commission (SDPUC) for the Crowned Ridge Wind Project (CRW) requires a field test of the project's sound emissions once fully operational to verify that it is meeting certain specific noise limits at neighboring residences. In essence, these noise limits can be summarized as:

- 50 dBA Leq(10 min) at Participating Residences
- 45 dBA Leq(10 min) at Non-Participating Residences
- 50 dBA L90(10 min) at Non-Participating Property Lines in Codington County

This verification survey was carried out by Epsilon Associates, Inc. on behalf of the project owner over a three week period from October 20 to November 10, 2020. Hessler Associates, Inc. has been engaged by the SDPUC to independently:

- Review and approve the protocol for the test (drafted by Epsilon)
- Witness and oversee the selection of specific measurement locations and instrument set up
- Analyze the raw data collected during the survey and assess the results
- Review Epsilon's survey report and assess the validity of its conclusions

All of these tasks have been completed. This report focuses on the latter two bullet points above.

1.1 Executive Summary

Condition 26 of the "Final Decision and Order Granting Permit to Construct Facility; Notice of Entry" (Final Decision) issued by the South Dakota Public Utilities Commission (SDPUC) for the Crowned Ridge Wind Project (CRW) requires a field test of the project's sound emissions once fully operational to verify that it is meeting certain specific noise limits at neighboring residences. In essence, these noise limits can be summarized as:

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In general, our independent analysis of the raw survey data, carried out prior to reviewing the final Epsilon report, indicates that the sound emissions from the project are essentially compliant with the noise limits contained in the permit conditions. However, by looking at the data from a graphical, level vs. time perspective rather than the purely mathematical, data sort approach employed by Epsilon, we found instances where the project sound level unequivocally exceeded the applicable limit at three of the six test locations. More specifically, the wind gradient and general atmospheric conditions appear to have been highly conducive to the propagation of project sound during the 17 hour period from about 1 p.m. on 10/22/20 until about 6 a.m. on 10/23/20 and it can be concluded with considerable certainty from the behavior of the measured sound levels through the shutdowns that occurred during this period, and from a review of audio files before, during and after these shutdowns, that the Leq(10 min) sound levels measured 1 to 5 dBA above the permitted limits where driven by the project rather than background sound. This period was overlooked in the Epsilon analysis because the turbines were not operating at their absolute top power output of 2300 kW (one of the key data sort filters) but rather around 2200 kW or lower. These overages were observed at Positions 1, 2 and 3 only during this particular time period. During the remainder of the survey at those test locations and throughout the entire survey at Positions 4 through 6 there is no evidence of non-compliance and, in fact, every reason to believe the project's sound emissions are below the applicable maxima. Because the overages occurred

only once at only three of the six test positions during this unusually long three week survey period and because wind turbine noise is unavoidably variable with changing atmospheric conditions, we would conclude that the project has been appropriately designed and is meeting, in good faith, the intent of the permit noise limits. In essence, our analysis indicates that the project sound level was compliant with the stipulated noise limits at Positions 1-3 for 96% of survey period and for 100% at the remaining positions.

2.0 Independent Assessment

The sound emissions from wind turbines at typical setback distances to residences are very difficult to measure and definitively quantify. This is because the natural environmental sound level during the windy conditions necessary for the project to operate are similar to and often higher than the project-only sound level. Consequently, it can be generally stated as a fact that the total observed sound level at any given location under virtually all wind and weather conditions is not the project sound level, but rather is a combination of the project sound level and the natural sound level that would otherwise exist. During high wind conditions the project component of the total sound level essentially becomes negligible and is completely drowned out by wind-induced sounds, either actual, such as trees or crops rustling, or artificial, as in microphone distortion from wind.

In an effort to overcome this difficulty, the test procedure/permit language specifically includes the use of multiple, short-duration project shutdowns to enable the measurement of the total sound level (project + background) and the background level alone within a few minutes of each other so that the wind and atmospheric conditions are held reasonably constant. The project-only sound level, which is the quantity subject to the regulatory limits, can then be derived by logarithmically subtracting the background level from the total level with the project on. However, even this ostensibly simple approach doesn't always yield a valid, or any, answer because it only works when the differential between the on and off levels is significant, or at least about 3 to 4 dB. In practice, such a large signal (project sound) to noise (background noise) ratio is rarely seen because the project sound level is intentionally designed to be low at sensitive receptors while the natural sound level increases almost indefinitely with wind speed. When the signal to noise ratio is lower than about 4 dB a valid project-only sound level cannot be calculated. Even though the entire project was shutdown 47 times during this three week survey, there were only a handful of instances when the sound level actually decreased by a significant amount while the turbines were off. In most cases there was either no measurable change, the sound level was higher during the shutdown than during the operational periods immediately before or after, or the winds were too light for the project operate anywhere near full output.

The graphics discussed below show, for each position, the measured sound levels, the electrical output of the two nearest units and the wind speed at the ground and at hub height. The first plot in each case shows the entire survey and the following five plots enlarge the periods when the project was consistently operating at or near full power.

2.1 Position 1 – Participating Residence, 50 dBA Permit Limit

The overall results for Position 1, a participating residence near the center of the project, are shown below.

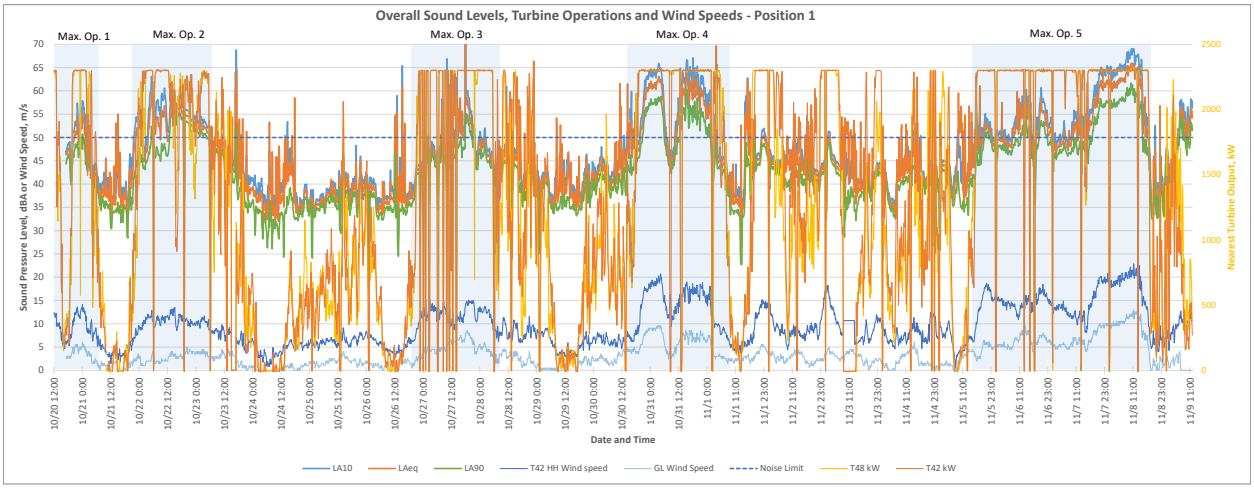

Figure 2.1.1

The yellow and tan lines are the electrical production of the two nearest turbines, T48 and T42. This overall plot shows that there were essentially five periods, shaded in blue, when the winds were sufficient for the turbines to consistently operate at or near their maximum rating of 2300 kW. These periods are enlarged and discussed below. Annotations on the figures interpret the general meaning of the sound levels in terms whether the project is detectable or not relative to the background level and what can be deduced from the shutdowns about the project sound level.

Markers, designated with an "E" and a subsequent number, identifying the evaluation periods contained in the Epsilon report have been added to these figures for informational purposes.

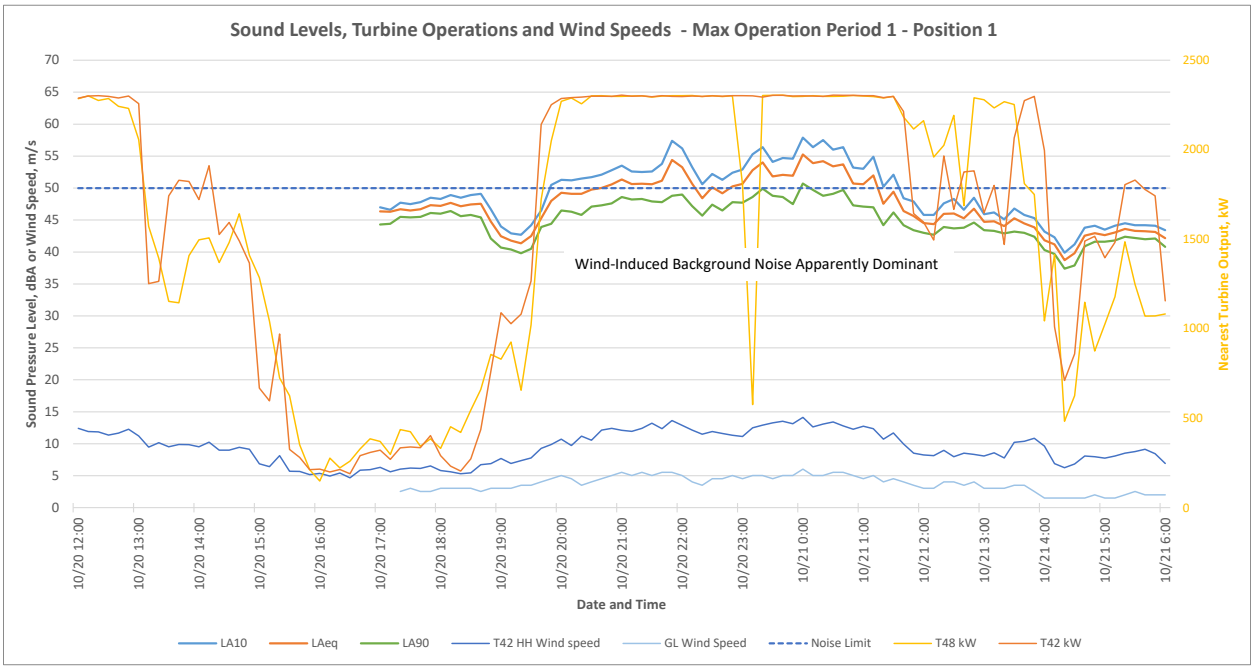

Figure 2.1.2

This graphic illustrates the first windy period to occur during the survey. The sound level of principal interest is the Leq(10 min) (orange trace), which can been seen here to exceed the 50 dBA limit from about 9 p.m. on 10/20 to about 1:30 a.m. on 10/21 while the nearest turbines were generally operating at full output. Because there was not a full shutdown during this period there is no definitive way to ascertain whether these relatively elevated sound levels were due to the project or not. However, since the near shutdown, for whatever reason, of Unit T48 just after 11 p.m. has no effect on the measured sound levels, the best interpretation of this time period seems to be that the overall levels were being driven by background noise rather than the project.

The second period of maximum project operation is illustrated below.

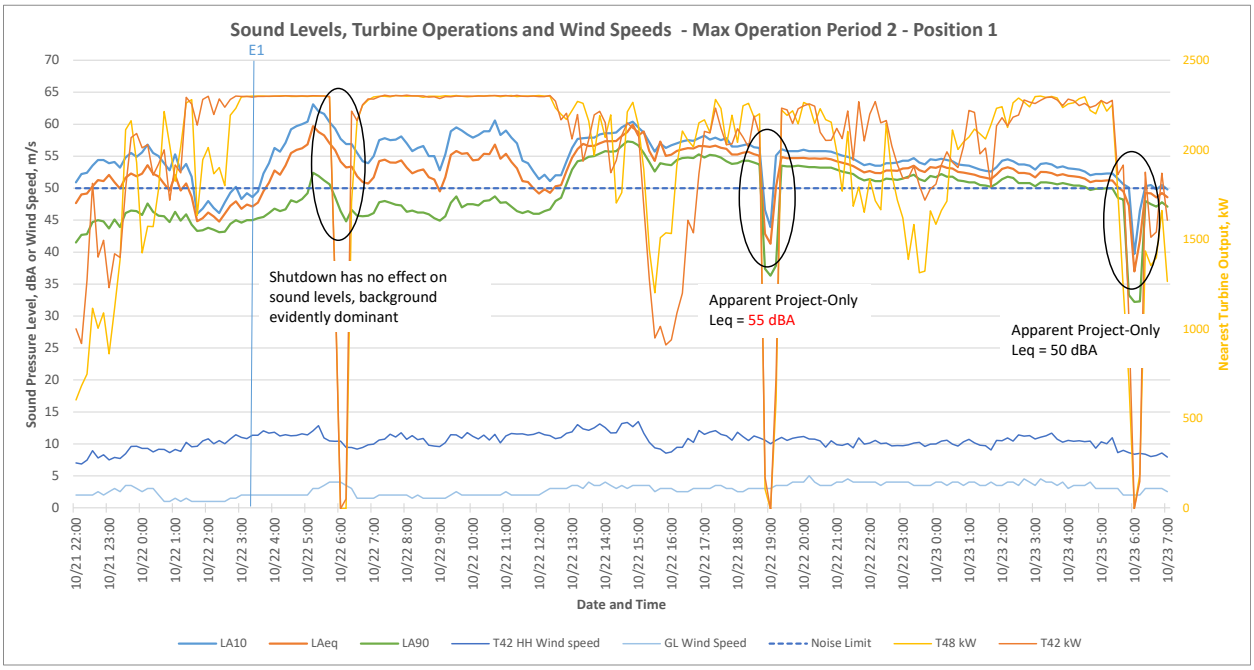

Figure 2.1.3

There were three shutdowns during this period. The first at 6 a.m. on 10/22 did not have any significant influence on the sound levels, which means that background noise was dominant and the sound emissions from the project were a largely insignificant component of the observed total sound level. It was a completely different story, however, during the second shutdown at 7 p.m. later that same day. It can clearly be seen that the key Leq sound level dropped precipitously from about 55 dBA to 42 dBA when the project was shutdown and then returned immediately to 55 dBA when the project was restarted. This large on/off differential of 13 dBA means that, in this case, background noise was insignificant and project noise at a level of 55 dBA was dominant at that time. At 6 a.m. the next morning a similar 13 dBA drop in sound level during the next shutdown indicates that the project's sound emissions were still dominant, although at a lower level of around 50 dBA. Because the wind conditions and lack of fluctuation in the sound levels (illustrated by how close the L90, Leq, and L10 are to each other) remain largely constant between these two shutdowns, it can be concluded that the project was driving the sound levels over this entire time, probably beginning around 1 p.m. on 10/22 and lasting until 6 a.m. on 10/23. During this 17 hour period the Leq sound level ranged from 50 to 60 dBA, or possibly up to 10 dBA above the 50 dBA limit. A review of the audio files recorded before during and after these latter two shutdowns confirms that the overall sound level was dominated by the project. A rhythmic roaring sound with a faint swish is audible before and after, while the light rustle of grass in the breeze is all that can be heard during the shutdowns. The 1/3 octave band frequency spectra before, during and after these two shutdowns are plotted below to illustrate the change in audible sound during the shutdowns. The plots are A-weighted, meaning that the highest frequency bands represent what is most readily audible and vice versa.

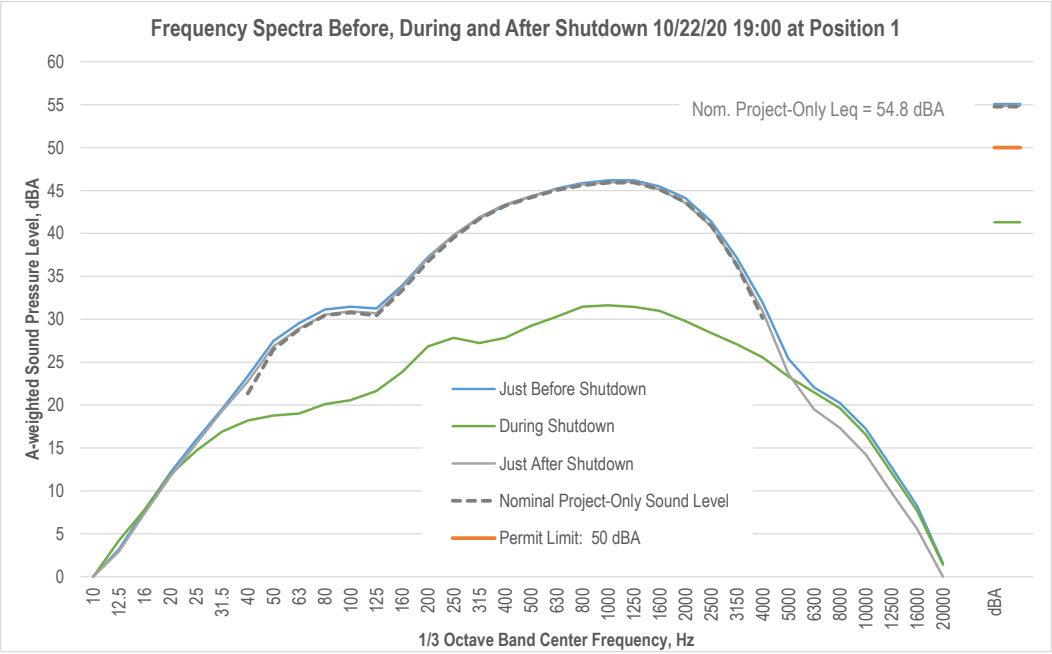

Figure 2.1.4

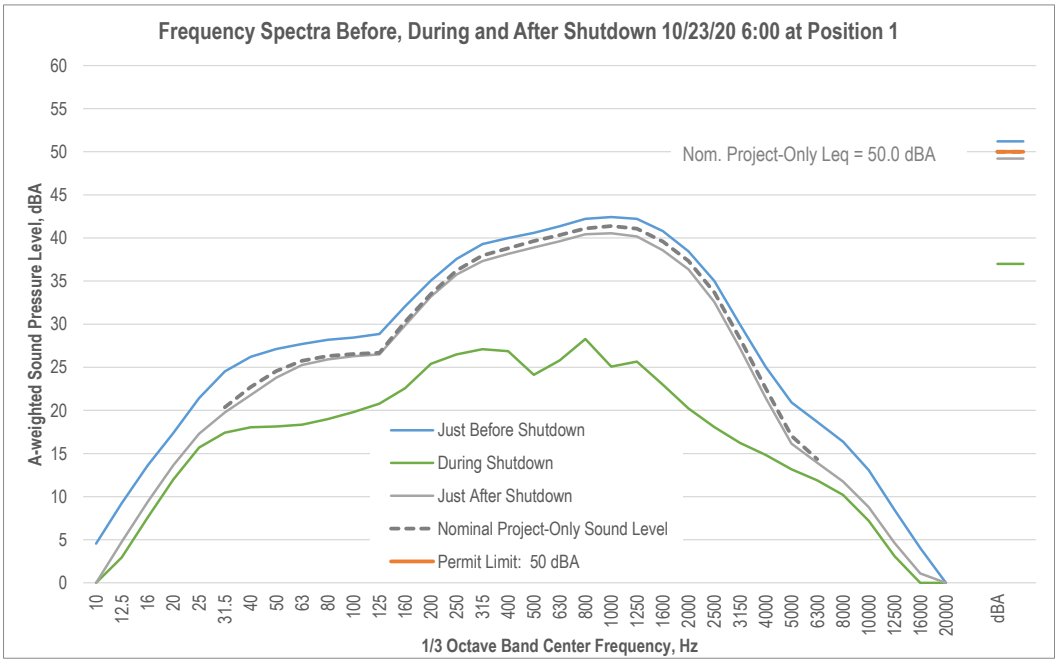

Figure 2.1.5

These plots show that mid-frequency aerodynamic sounds, typical of wind turbines, were very prominent during this period, evidently due to highly conducive atmospheric propagation conditions, including a pronounced wind gradient where it was relatively calm at ground level, reducing local background noise, and rather strong (about 10 m/s) at hub height.

It is of interest to note that the project was not operating at maximum power (2300 kW/unit), the presumed maximum noise condition, during this period but rather at a somewhat lower and variable output of roughly 2200 kW or less. Even though the project was apparently dominant during this period the sound levels do not closely track power output, suggesting that once the rotor gets anywhere near full speed of 13 rpm the sound level is fairly steady and at or close to its maximum value. Generally speaking, the rotor speed was in the 11 to 13 rpm range during this period.

The third period when the project operated at or near full load is plotted below.

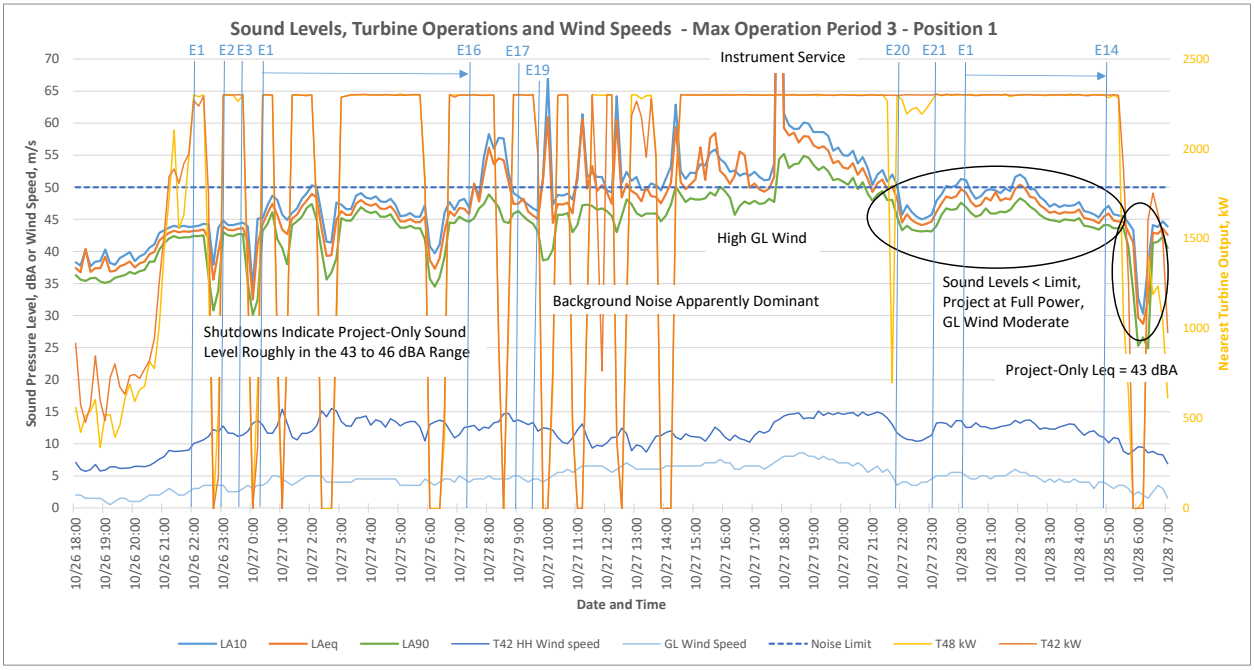

Figure 2.1.6

The project was essentially operating at full power over the period from late on 10/26 to the morning of 10/28 and numerous shutdowns were initiated. The effect on the sound levels from these shutdowns can be seen in the first five, where the levels drop from 3 to 10 dBA during the outages. This indicates that the project's sound emissions were prominent and audible during this period – and consistently below the permissible of 50 dBA; generally in the 43 to 46 dBA range. Apparently due to changing atmospheric conditions and increasing ground level wind speed, the next set of five shutdowns beginning at 8:30 a.m. on 10/27 had no effect whatsoever on the sound levels, indicating that wind-induced background noise became dominant. It can be surmised that these levels, often over 50 dBA, are not attributable to the project. When the ground level wind speed decreased to below the 5 m/s measurement validity threshold at about 10 p.m. on 10/27 the total sound level dropped below the compliance limit of 50 dBA and stayed there. During the

shutdown at 6 a.m. on 10/28 there was a large drop in sound level allowing the project sound level to be conclusively quantified at 43 dBA, which is clearly well below the permissible limit.

The fourth analysis period is plotted below.

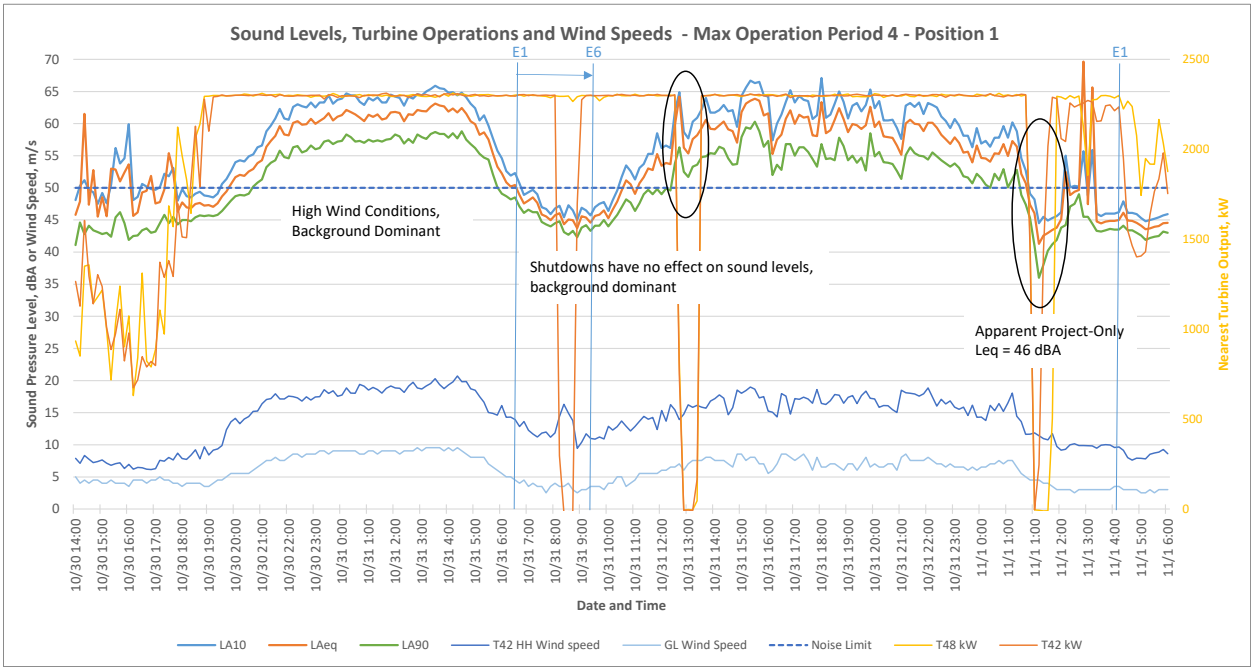

Figure 2.1.7

The total measured sound levels during this period of full power operation were largely dominated by local background noise due to elevated ground level winds, which were greater than the 5 m/s cutoff specified in the test protocol much of the time. On the three occasions that the ground level wind speed decreased below 5 m/s the total Leq sound level, without any adjustment or compensation for background noise, was generally around 45 to 47 dBA. During the shutdown at 1 a.m. on 11/1 a project-only level of roughly 46 dBA was observed (derived by subtracting the off sound level from the levels just before and after the shutdown).

During the fifth and final high wind period (Figure 2.1.8, below) there were 8 shutdowns: 6 that did not show any correlation with sound level, indicating that the project was essentially inaudible over the natural sound level, and 2 that did result in a drop in sound level that was large enough to calculate compliant project-only sound levels of 45 and 50 dBA.

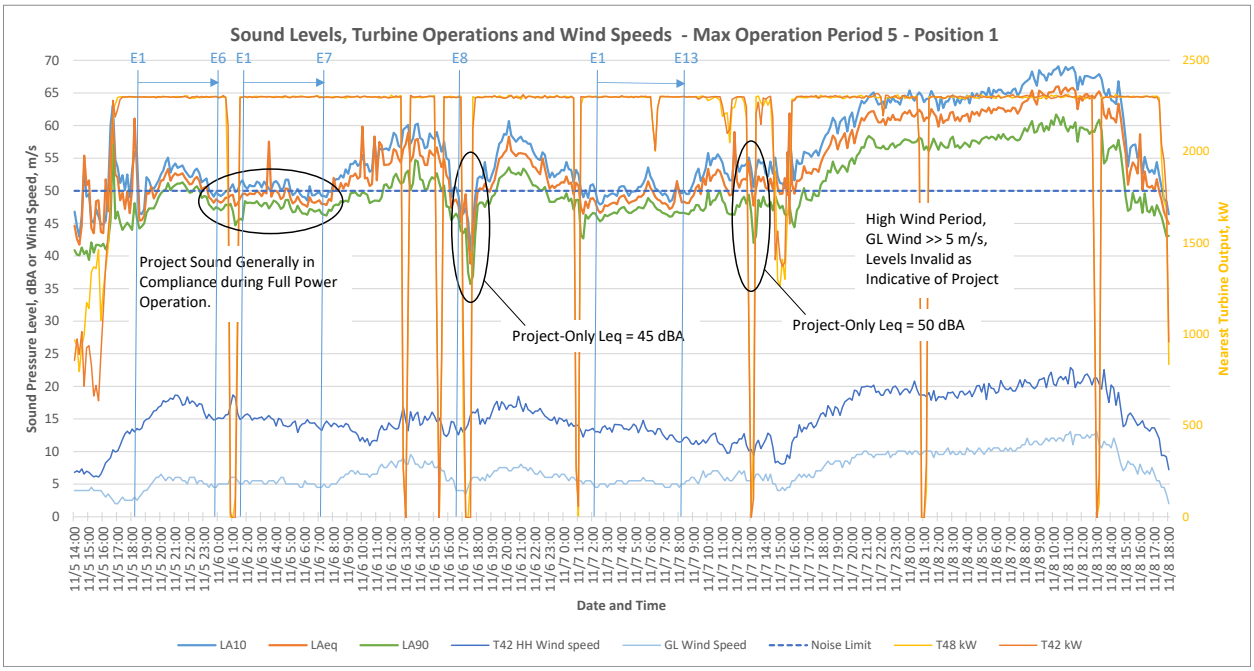

Figure 2.1.8

Towards the end of this sampling period the ground level wind speed got up to about 13 m/s and the overall Leq sound level was driven all the way up to 65 dBA around 11 a.m. on 11/8. The shutdown two hours later at 1 p.m. shows, because there is no drop at all in sound level, that all of this considerable noise is unrelated to the project; evidently wind blowing through trees, grass and crop remnants.

In summary, then, the data measured at Position 1 indicates that the sound emissions from the project during periods of full or near maximum output are mostly characterized by dominant, wind-induced background noise where the project is covered up and largely or completely inaudible. At times when the ground level wind speeds are lighter, the total sound level including background noise is typically in the 40's dBA and therefore clearly in compliance with the permit limit. There was only one instance on 10/22 and 10/23 when sound levels higher than 50 dBA could be ascribed to the project with confidence. Evidence from shutdowns and audio recordings indicates that sound levels in 50 to 60 dBA range were generated essentially exclusively by the project during a 17 hour period. Within the context of the entire 480 hour (20 day) survey, however, the data suggest that the project was in compliance with the 50 dBA limit for 96% of the time, which, in our opinion, meets the intent of the noise conditions. Experience measuring many operational wind projects indicates that rare, upward excursions from the long-term mean sound level unavoidably occur at all sites when the vertical wind and thermal gradients occasionally combine in a way that temporarily enhances sound propagation.

2.2 Position 2 – Non-Participating Residence, 45 dBA Permit Limit

The overall results for Position 2 are shown below.

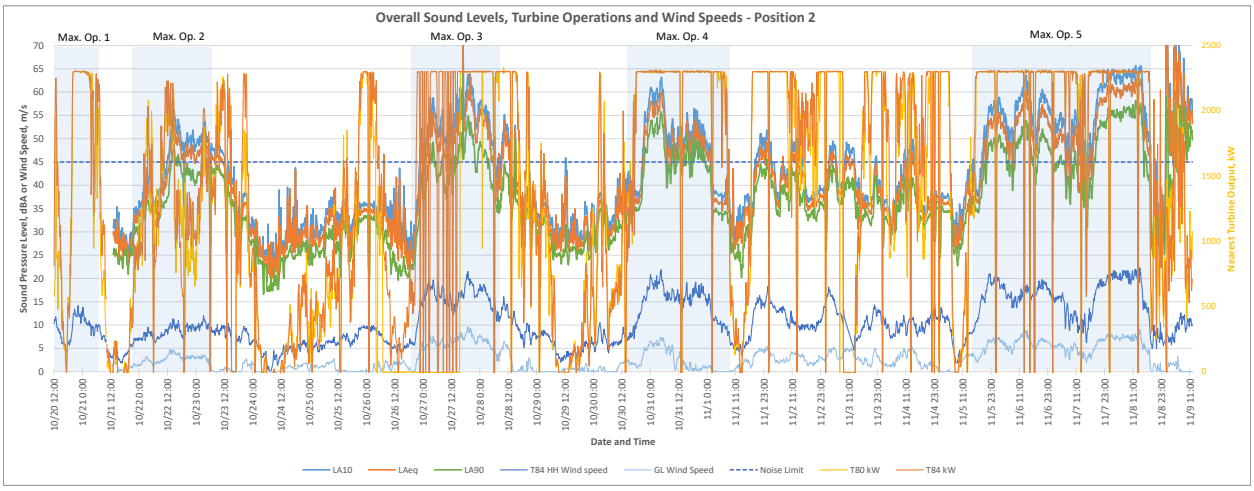

Figure 2.2.1

The sound measurement equipment at this position had not yet been set up to capture the first high wind period but the second period is plotted below.

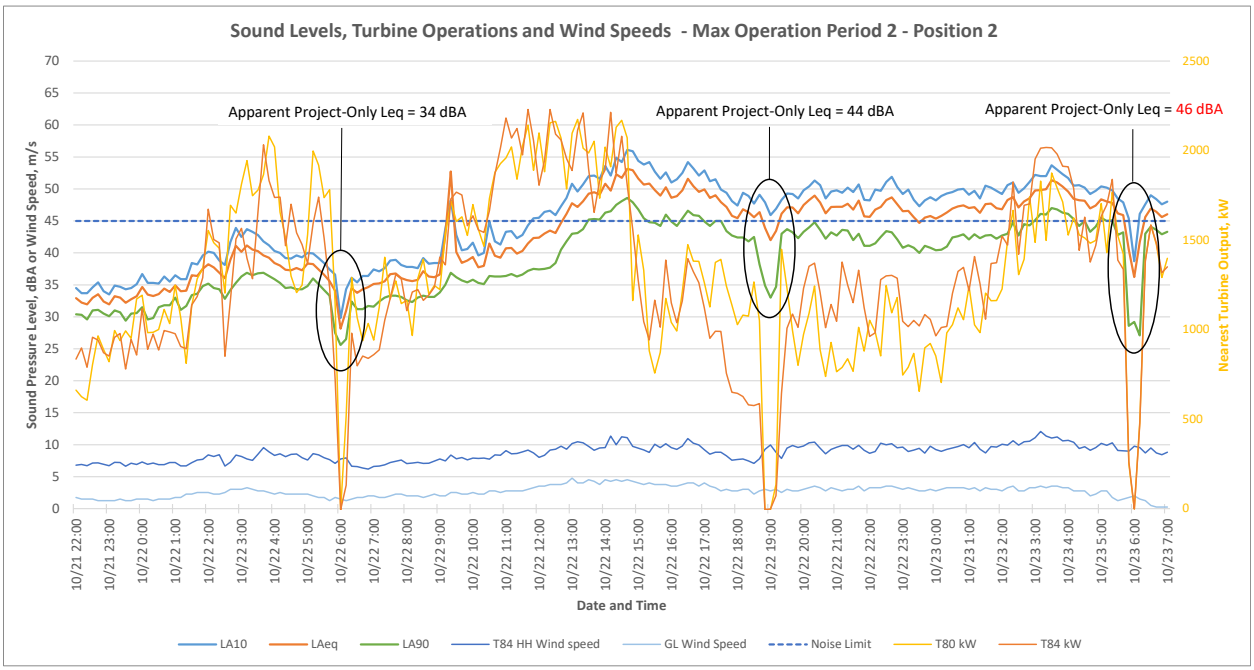

Figure 2.2.2

Even though the nearest turbines to this location were only operating sporadically at a fraction of maximum output, the effect of the project shutdowns can still be seen in all three of the intentional outages captured during this period. The dip in sound level during the first outage at 6 a.m. on 10/22 allows the project sound level to be calculated at 34 dBA, which is clearly in compliance with the permissible noise limit of 45 dBA and not unexpected, since the power output at that time was roughly 50% of maximum. Although the nearest turbines were still at this low operating point at 7 p.m. later the same day the sound levels were considerably higher during the next shutdown and a project-only sound level of 44 dBA can be derived from the before, during and after measurements. This 10 dBA increase in the project sound level appears to be a function of differing atmospheric conditions rather than any change in operations or background conditions. During the third shutdown at 6 a.m. on 10/23 a project-only sound of 46 dBA can be calculated with some certainty from the pronounced dip in sound levels during the outage. Although the project can only be said to have been slightly over the permissible limit around the time of this third shutdown, it appears likely that the levels above 45 dBA between the second and third shutdowns in this analysis period can be largely attributed to the project. This is the same time period when the sound levels at Position 1 were found to be unequivocally over the applicable permit limit at that location suggesting that the site-wide atmospheric conditions were favorable to sound propagation during this period.

A review of the audio files before, during and after the latter two shutdown in this analysis period confirm that the rhythmic swish of the project was audible, if not dominant at the time. The plots below show the A-weighted frequency spectra associated with the shutdowns at 7 p.m. on 10/22 and 6 a.m. on 10/23.

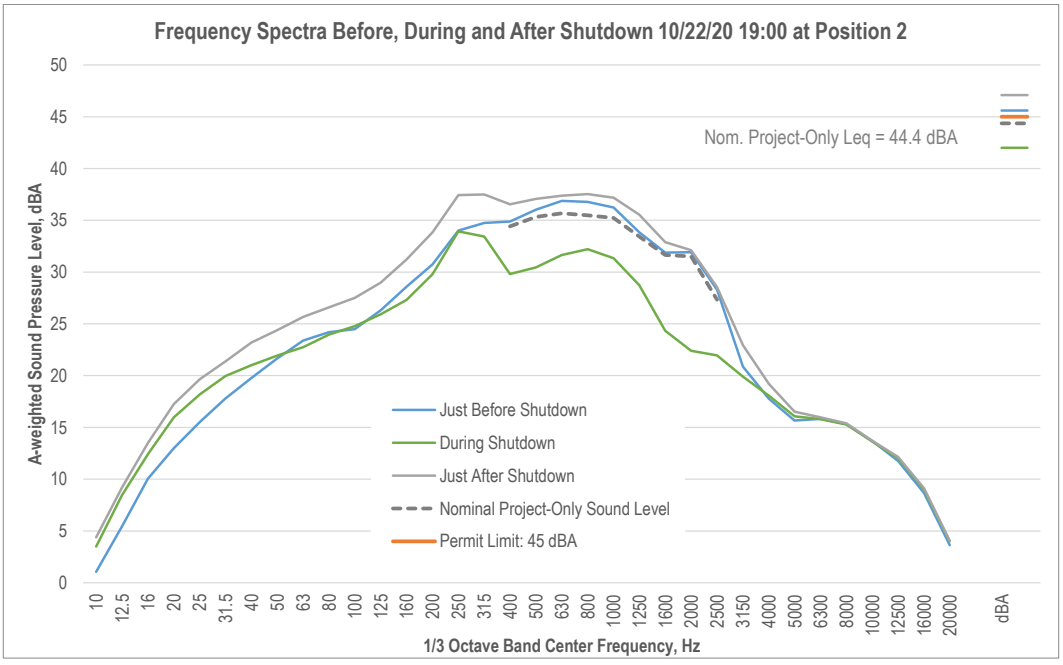

Figure 2.2.3

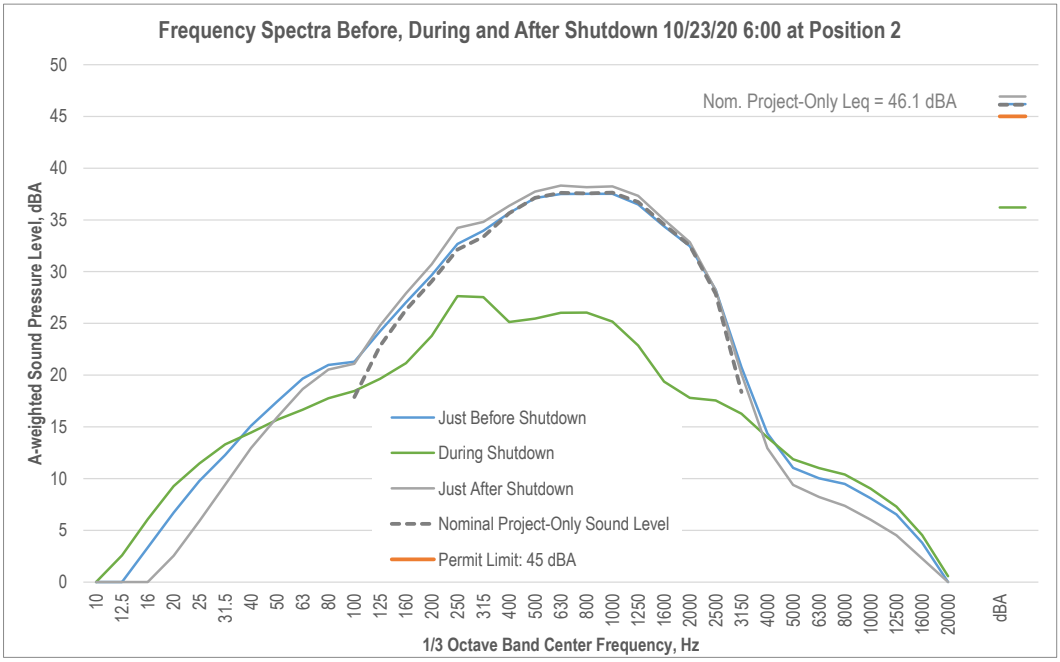

Figure 2.2.4

While the on/off differential is somewhat subtle and confined to the 400 to 2500 Hz range of the spectrum in the first case, it is much more pronounced and definitive during the 6 a.m. 10/23 shutdown. Even though the turbines were only operating around 1500 kW in this latter case, the project sound level can be put at 46 dBA with some confidence. By extension, it seems possible, if not likely, that the project-only sound level was even higher, perhaps up to 50 dBA, earlier in the night during the period around 3:30 a.m. on 10/23.

The remaining enlargements of the high wind periods for Position 2 are plotted below.

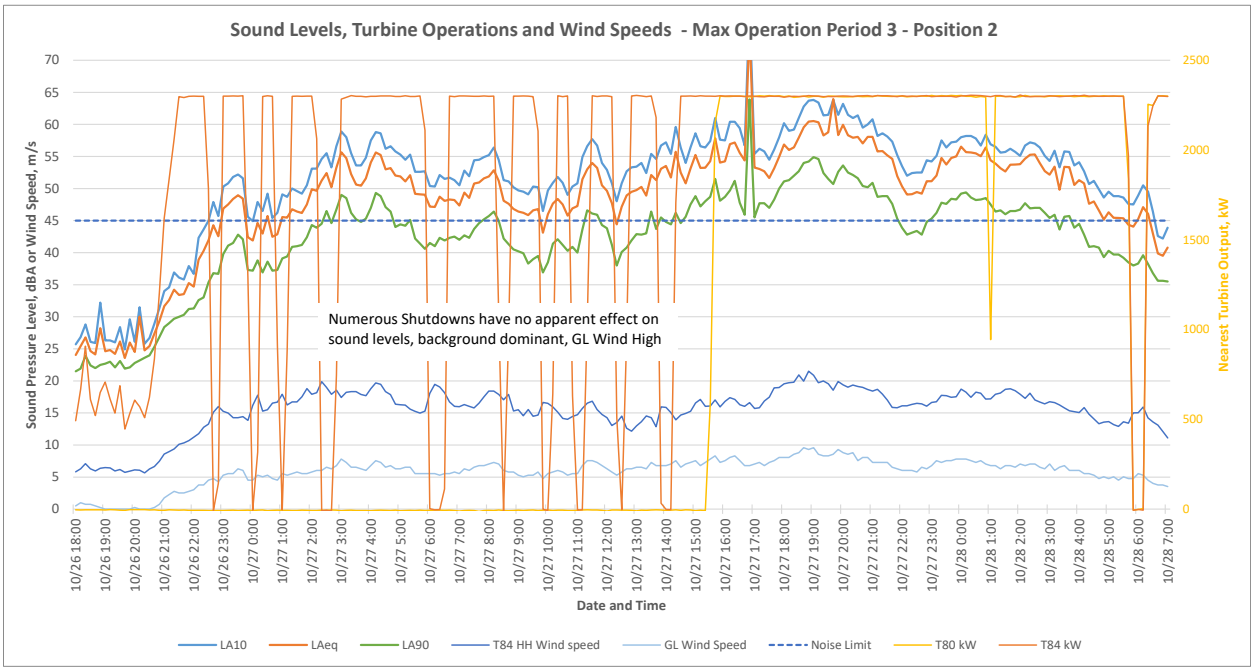

Figure 2.2.5

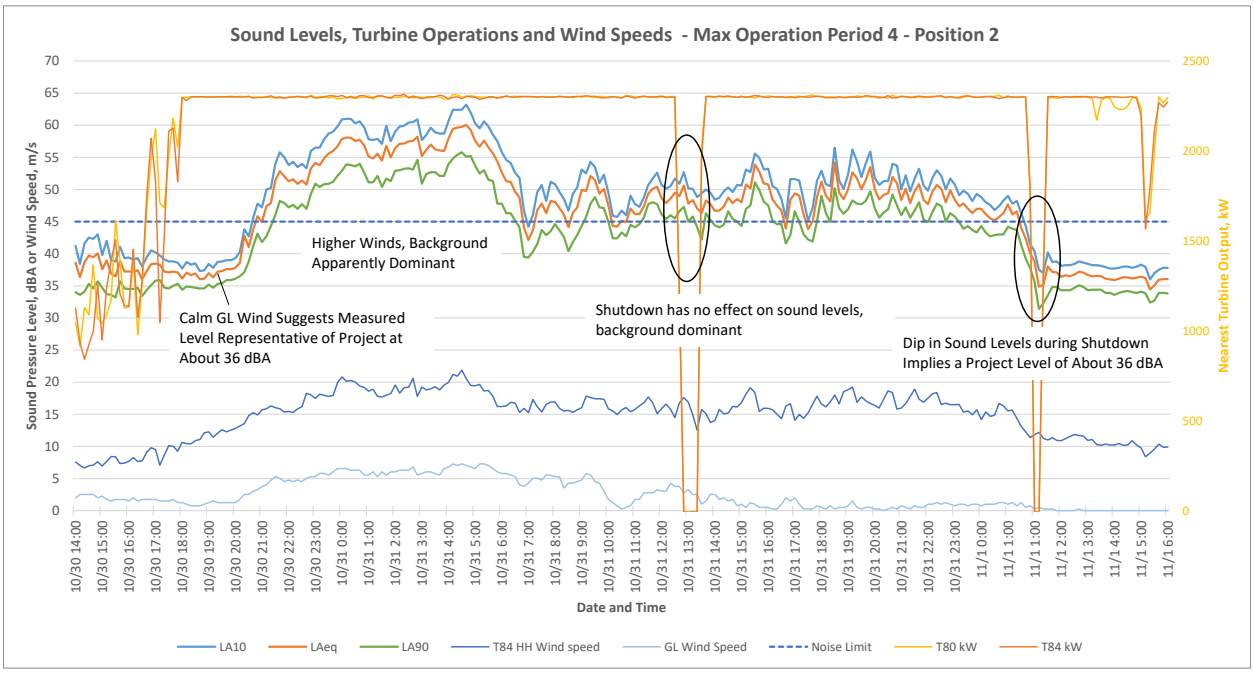

Figure 2.2.6

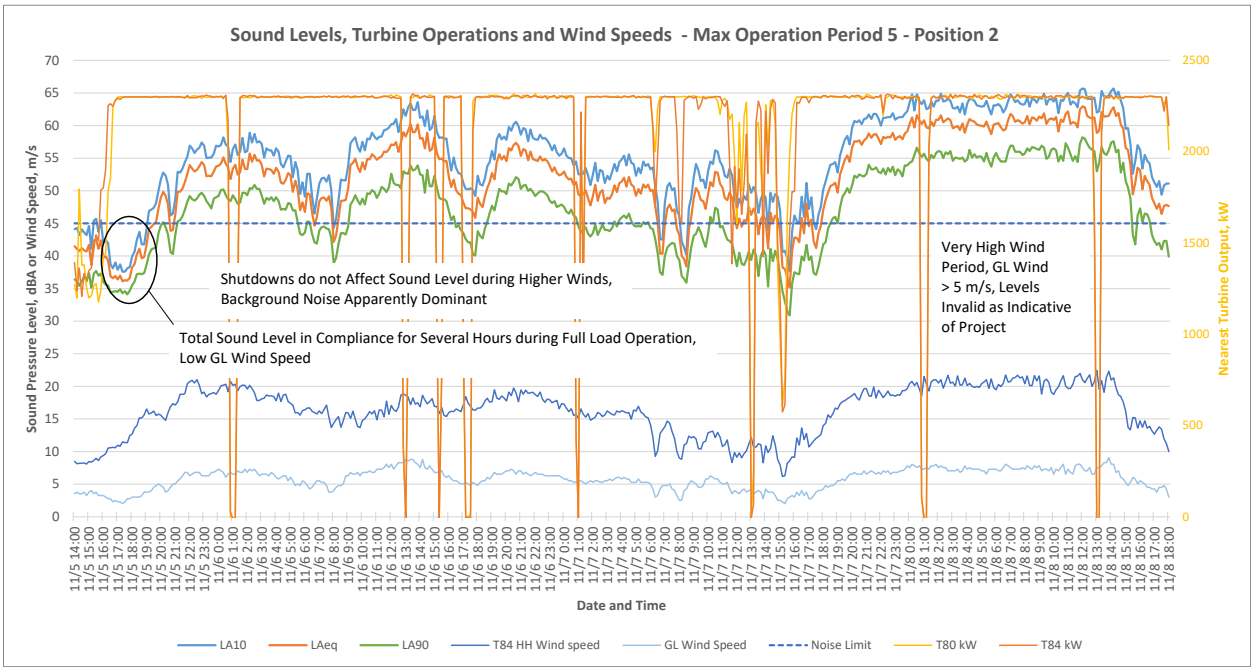

Figure 2.2.7

These last three periods are similar in the sense that none of the many shutdowns had any discernable influence on the observed sound levels. This generally means that project noise was not prominent or dominant, and highly unlikely to be the cause of the levels above 45 dBA. Where some idea of the project sound level can be observed, such as in Figure 2.2.6 around 1 a.m. on 11/1, the data point to significantly lower and compliant levels in mid- to upper 30's dBA.

2.3 Position 3A – Non-Participating Residence, 45 dBA Permit Limit

The overall results for Position 3A are shown below.

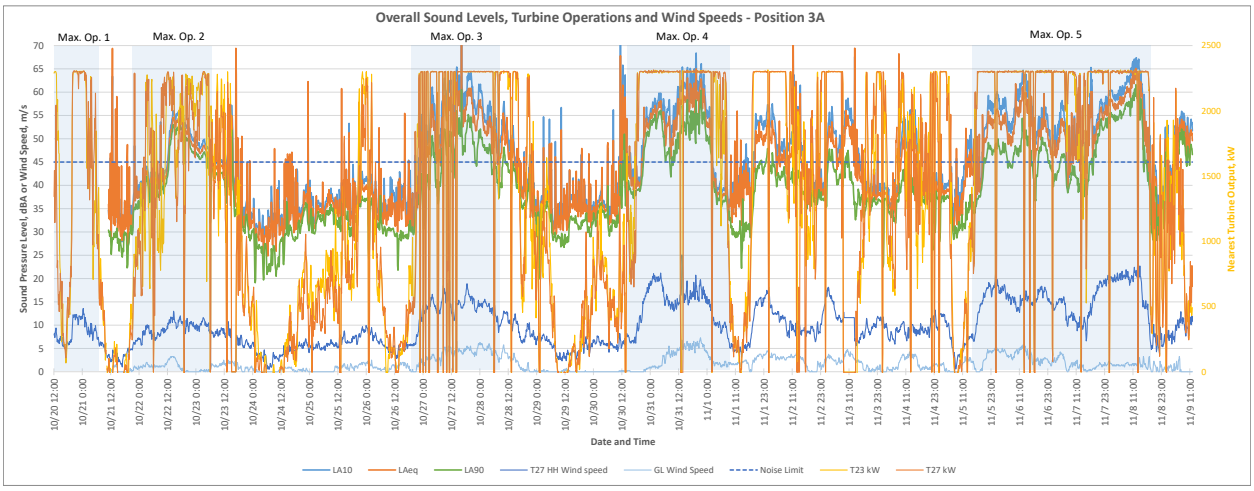

Figure 2.3.1

Since there is no sound data for the first period, the second high wind period is plotted below.

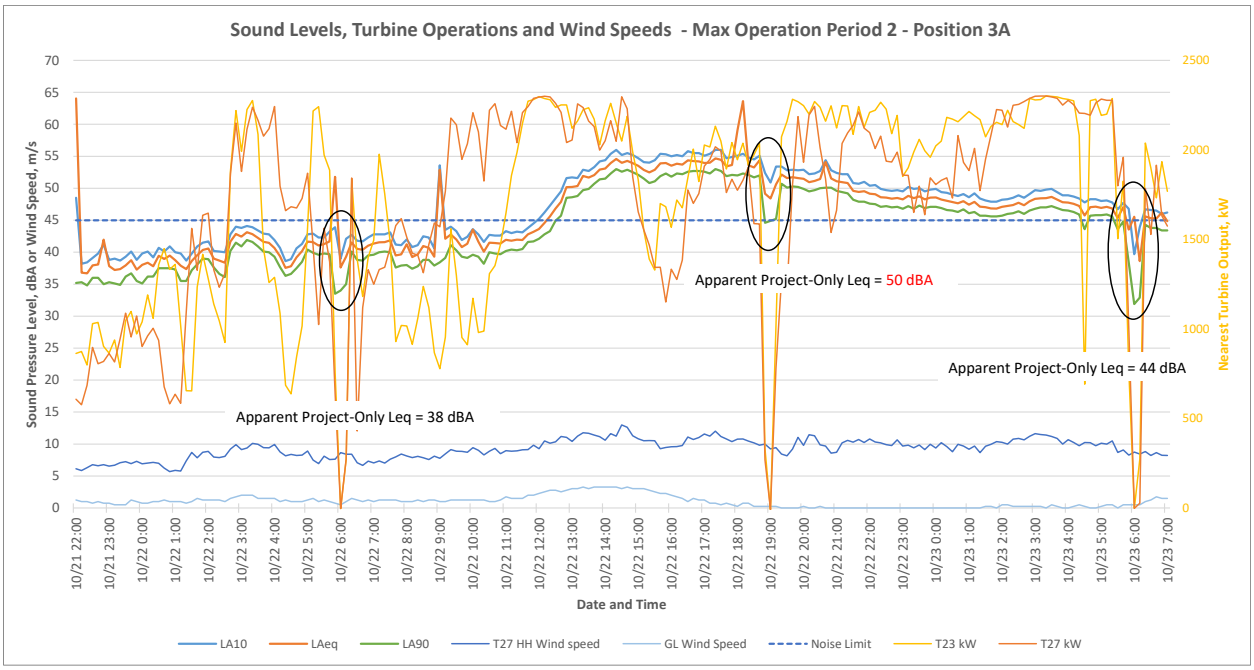

Figure 2.3.2

As at Positions 1 and 2, the three shutdowns that occurred during this period produced clear drops in the sound level allowing the project-only Leq(10 min) level to be determined. The first and

third shutdowns show that the project was below the 45 dBA limit, but the levels before, during and after the middle shutdown at 7 p.m. on 10/22 point to a non-compliant project sound level of 50 dBA. The average total Leq just before and just after was 52.4 dBA while with the project off the level was 48.4 dBA. This 4 dBA differential is just large enough to make a valid calculation of 50.2 dBA for the project component. The frequency spectra before, during and after this shutdown are plotted below.

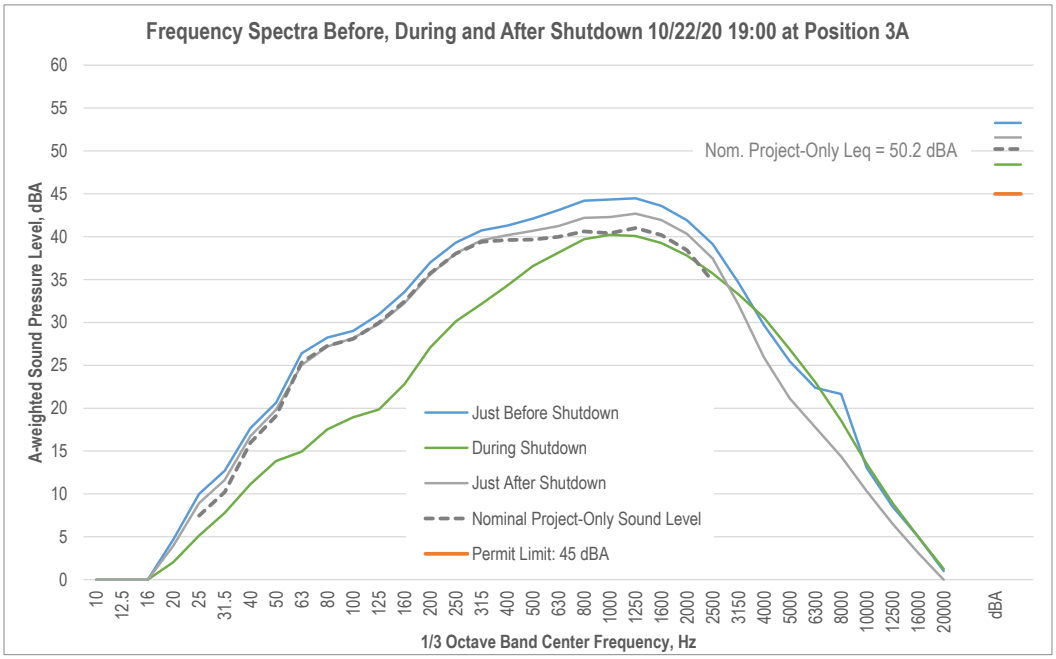

Figure 2.3.3

This graphic indicates that the project's prominence/audibility generally occurred in the lower to mid-frequencies (about 160 to 2000 Hz) and that the higher frequencies were dominated by background noise, perhaps wind the pine trees near this test position.

During the shutdown at 6 a.m. the next morning (Figure 2.3.4) the project's prominence is more clearly pronounced in the mid-frequencies, but the sound levels have decreased in absolute terms to the point where the project-only level is back in compliance with the 45 dBA limit.

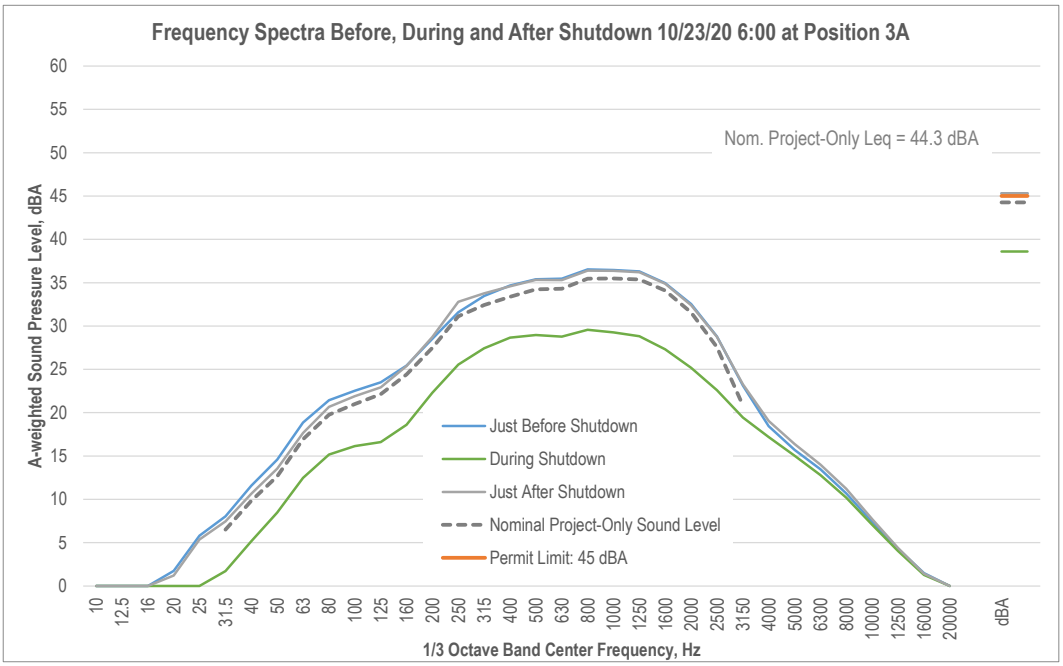

Figure 2.3.4

Although, for reasons that are unclear, the electrical output from the nearest turbines fluctuates around the time of these shutdowns, the consistency in the wind speeds and sound levels, as well as evidence from the audio recordings, suggests that the project was prominent and generally driving the overall sound level above 45 dBA from about 3 p.m. on 10/22 to the shutdown at 6 a.m. on 10/23.

The three remaining high wind periods are shown below in Figures 2.3.5, 2.3.6 and 2.3.7. As with the previous position, the numerous shutdowns that occurred through these three time periods have no effect on the sound levels, meaning that project noise was not prominent and cannot be quantified. In short, there is no evidence that the project sound is over the permissible limit and every reason to believe its contribution to the total observed sound level is small compared to the natural sound level.

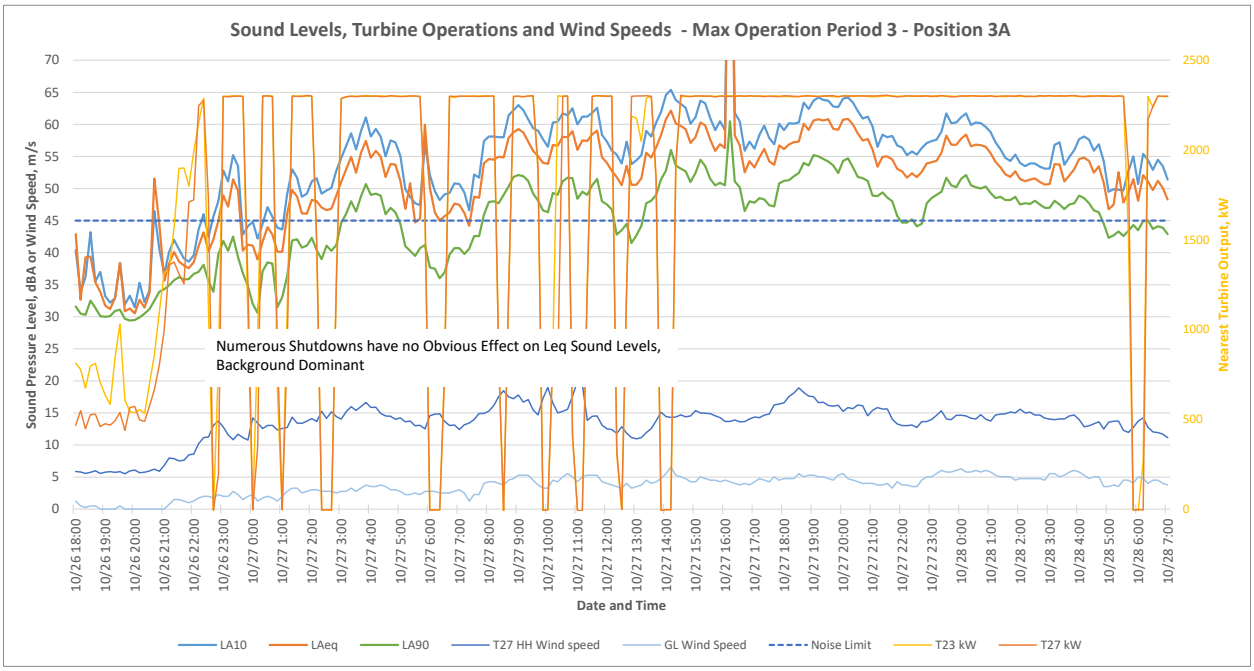

Figure 2.3.5

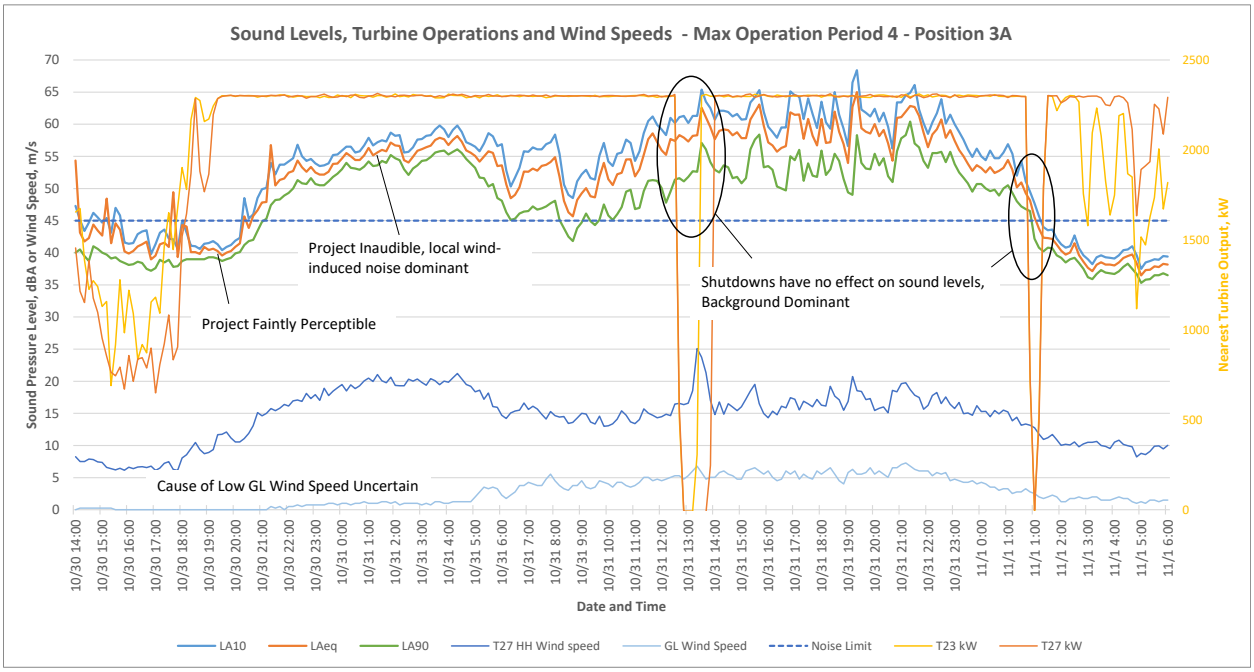

Figure 2.3.6

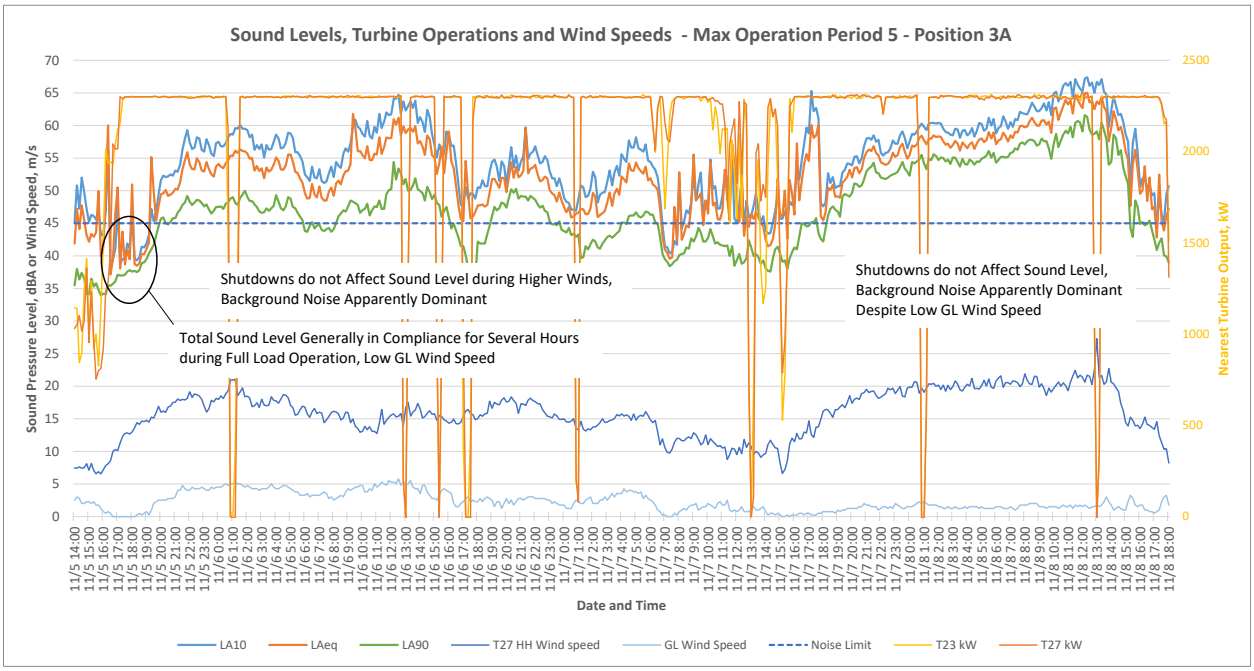

Figure 2.3.7

2.4 Position 4 – Non-Participating Residence, 45 dBA Permit Limit

The overall results for Position 4 are shown below.

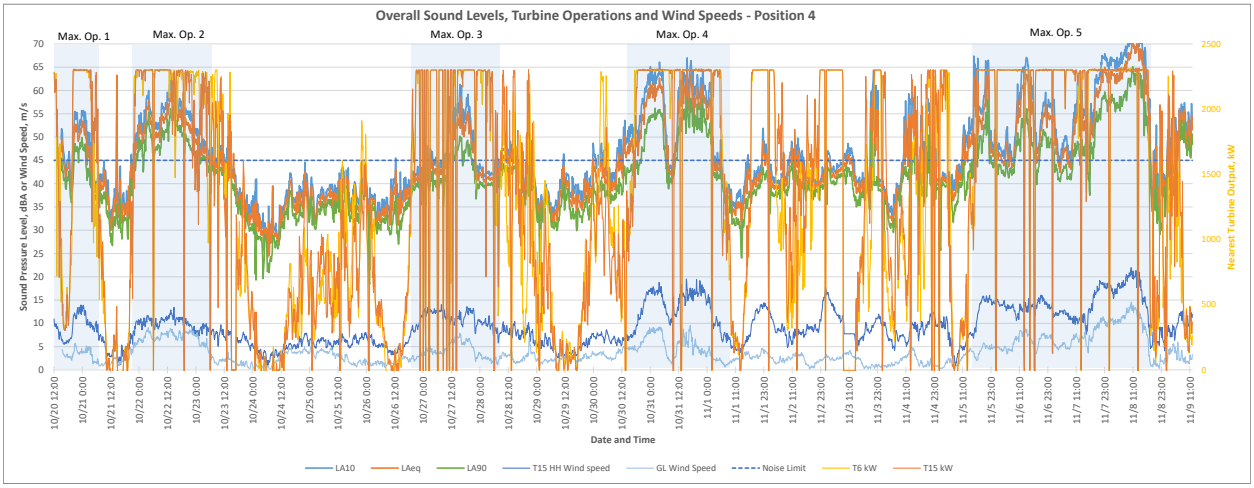

Figure 2.4.1

The first windy period is plotted below.

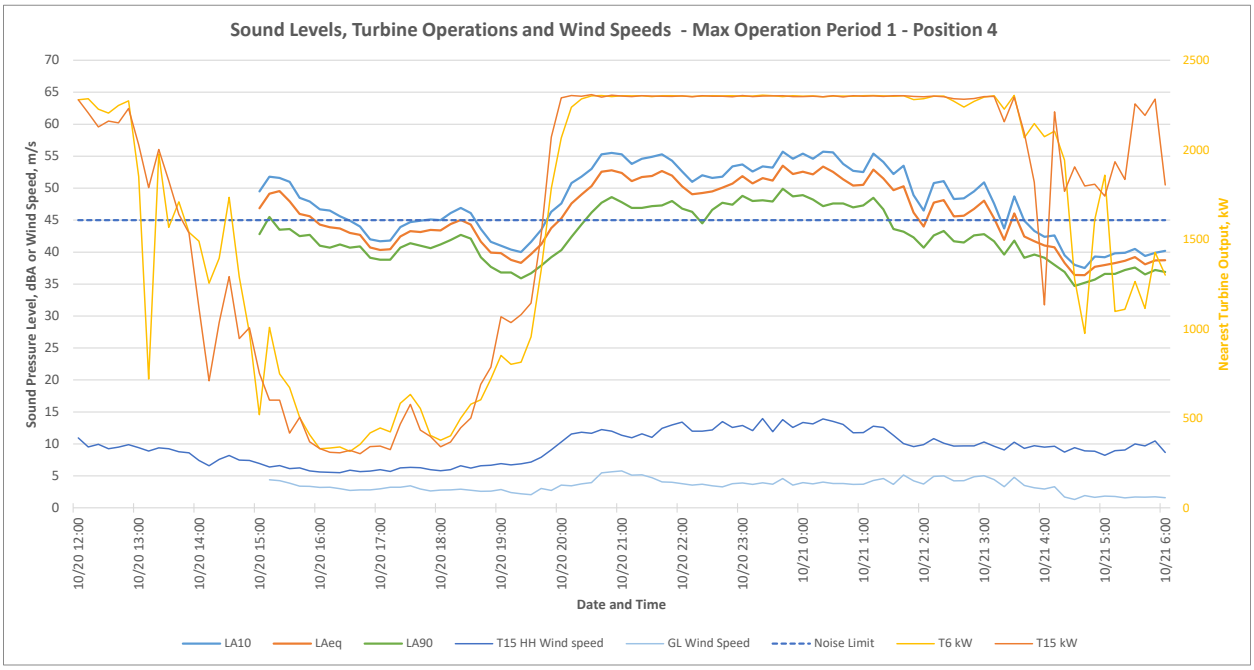

Figure 2.4.2

Although the total Leq sound level is in the low 50's dBA during the steady period of full load operation from 8 p.m. on 10/21 to about 3 a.m. on 10/22 there isn't any way to tell if these apparently non-compliant sound levels are attributable to the project or not. Judging from other similar periods at this and other positions where shutdowns occurred (allowing a judgement to be made) the most likely explanation is that background noise was dominant; but no definitive answer is possible.

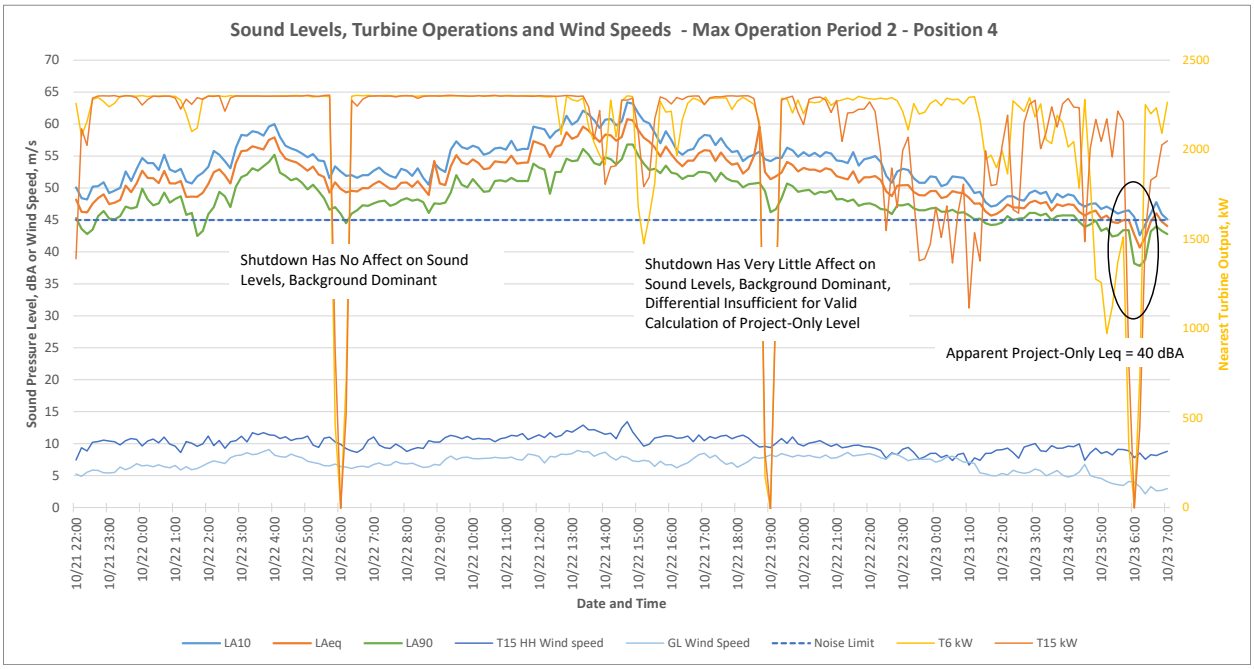

Figure 2.4.3

Figure 2.4.3 shows the period when atmospheric conditions apparently favored sound propagation from the project and when non-compliant sound levels could be identified at all of the previously discussed positions. In this instance, the change in sound level during the first two shutdowns is insufficient (<4 dBA) to calculate a valid project-only sound level. This demonstrates that the project level was not particular prominent relative to the natural background level, which makes sense since the ground level wind speed, responsible for local background noise, was well above the 5 m/s validity threshold at this location. Consequently, the Leq sound levels through this period, generally in the 45 to 60 dBA range, cannot be ascribed to the project. The dip in sound level during the third shutdown was sufficient to deduce a compliant project level of 40 dBA.

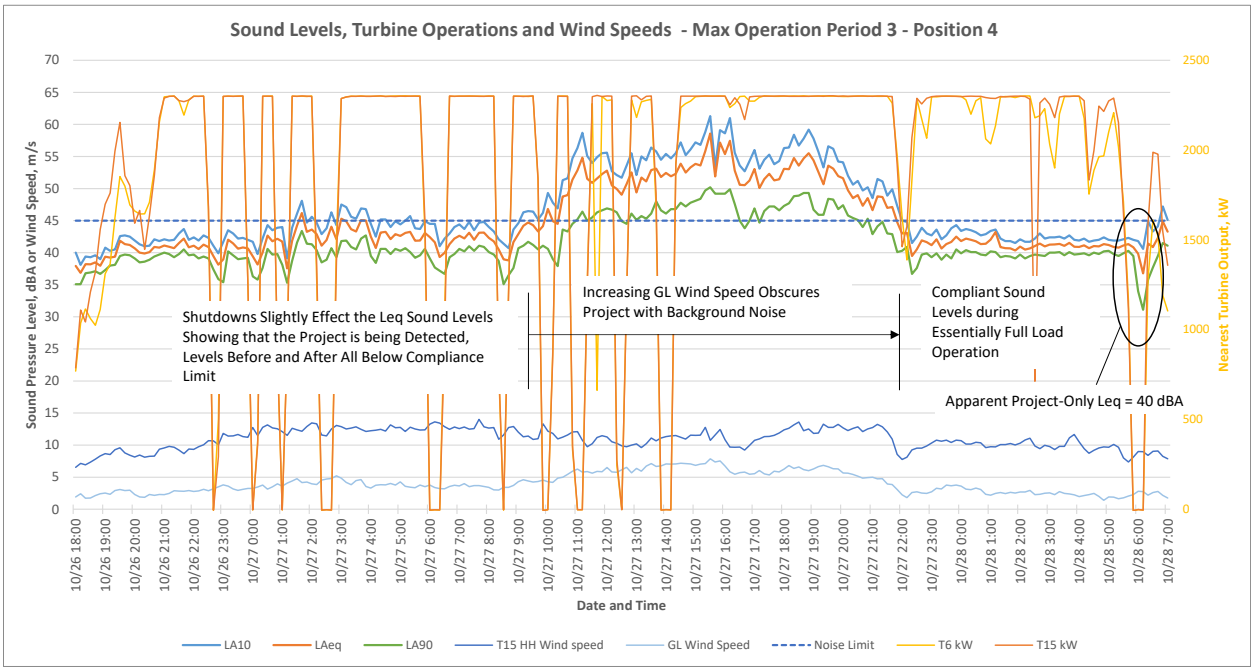

Figure 2.4.4

The third high wind period (Fig. 2.4.4) was rich in shutdowns. The first portion of this chart shows that the shutdowns mildly affected the total sound level and that the project was a significant contributor to the total level. During this time the Leq is consistently below the permissible limit. The middle of this analysis period is characterized by out-of-spec ground level winds, which were evidently responsible for the relative high sound levels. Once the ground level wind speed dropped around 10 p.m. on 10/27 compliant sound levels return. Although imperfect in the sense that the nearest turbines weren't operating at full power, the final shutdown suggests a project-only sound level of 40 dBA.

In the last two analysis periods the total sound level is almost completely unaffected by the project shutdowns, meaning that the project level is indeterminant and only a small component of the total measured level. Nothing in these charts indicates that the project is exceeding the permitted noise limit.

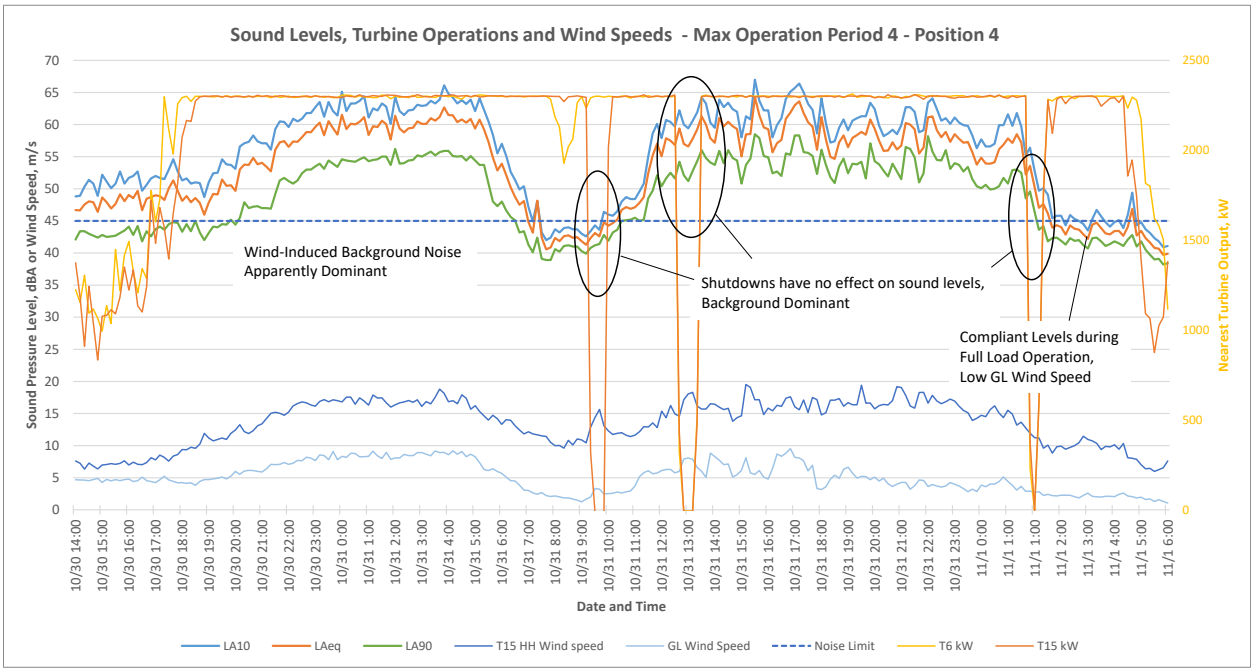

Figure 2.4.5

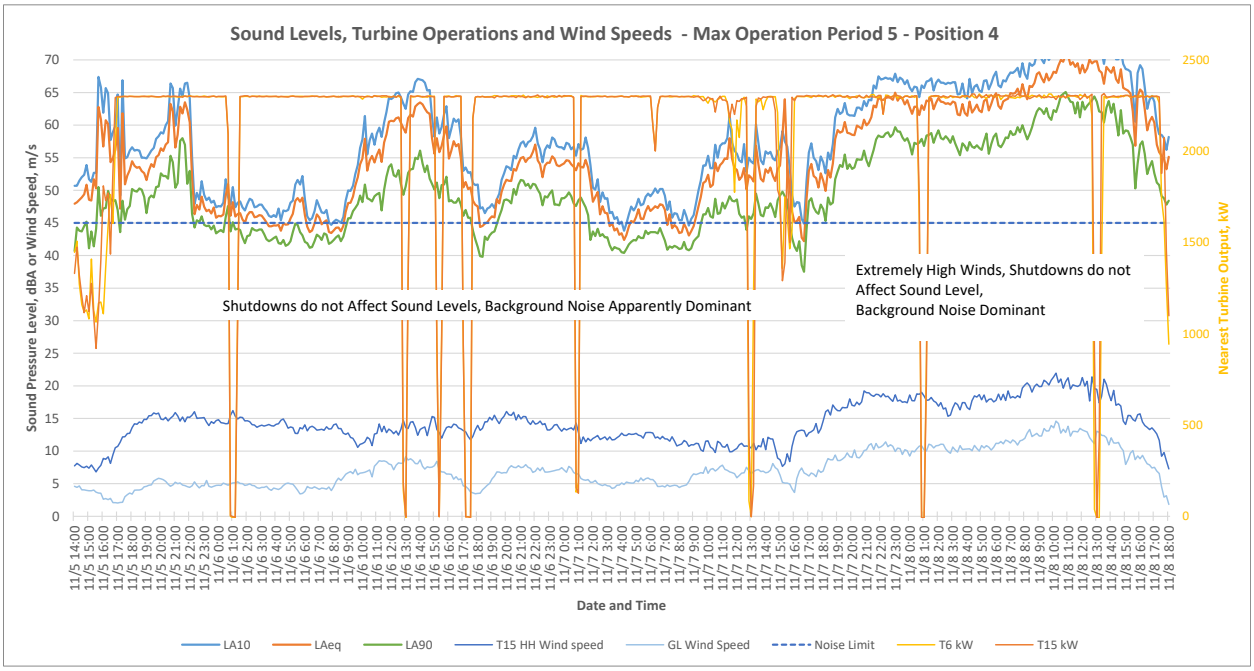

Figure 2.4.6

2.5 Position 5 – Non-Participating Residence, 45 dBA Permit Limit

The overall results for Position 5 are plotted below.

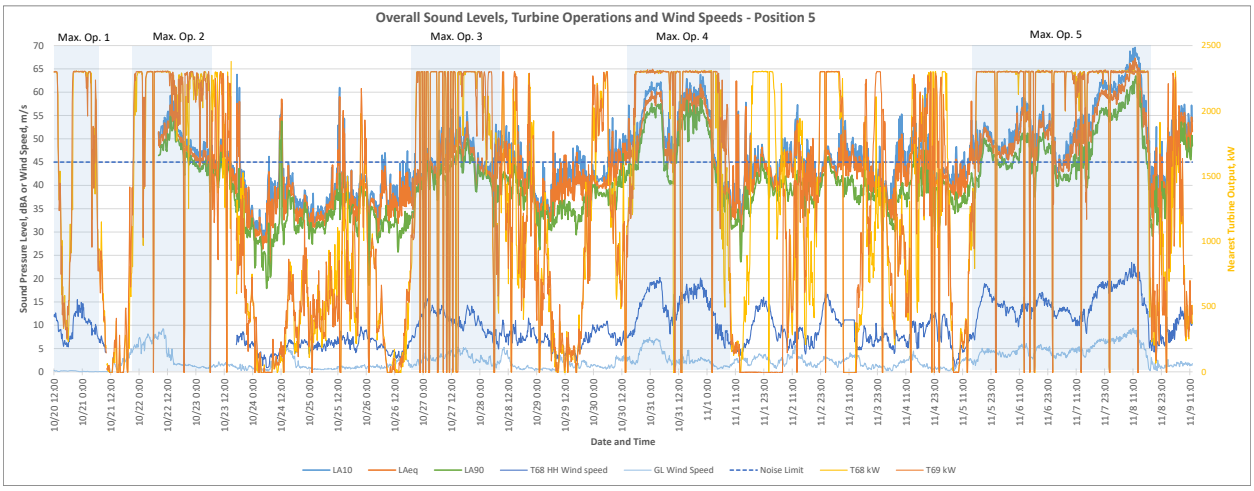

Figure 2.5.1

The second high wind period, with favorable sound propagation conditions, is plotted below.

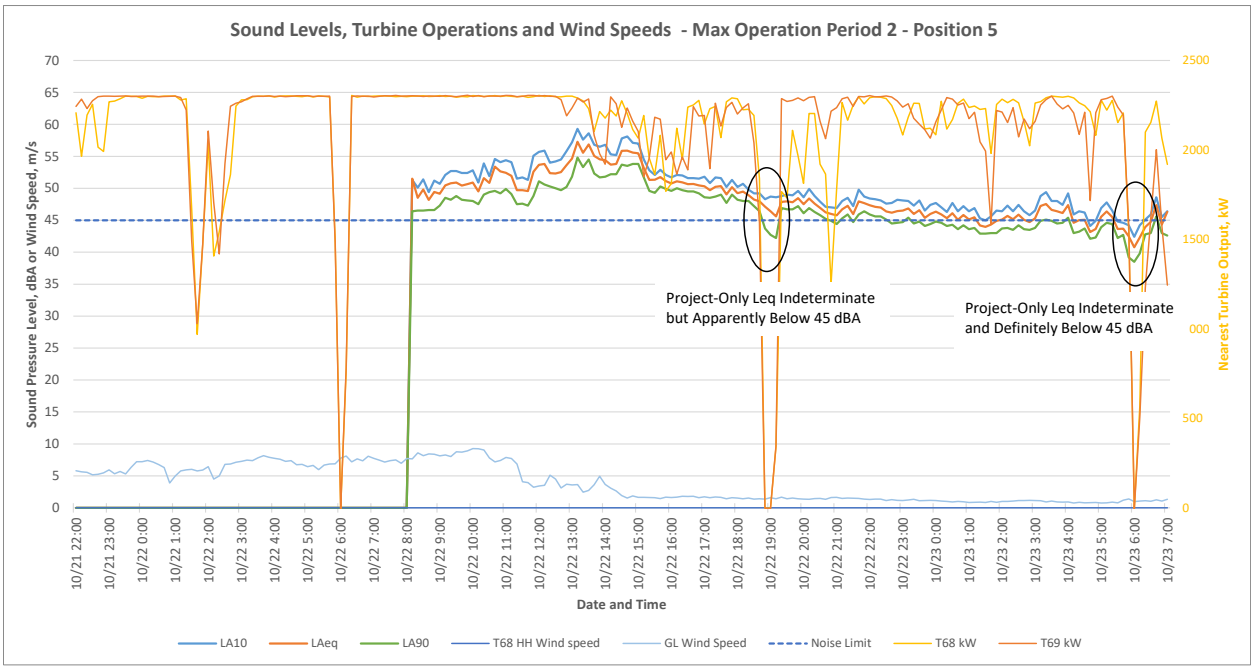

Figure 2.5.2

The second and third shutdowns produce a dip in sound level it is too small to calculate a definitive project-only level, but the small dip itself indicates that the project component of the total level is

fairly small and low in magnitude. In this case, that means that the project-only level was well below the total and therefore well below the 45 dBA limit.

The results during the third analysis period are nearly identical to those at the other test positions; namely, that the shutdowns produce very little, if any, change in the overall sound level, meaning that background noise is dominant.

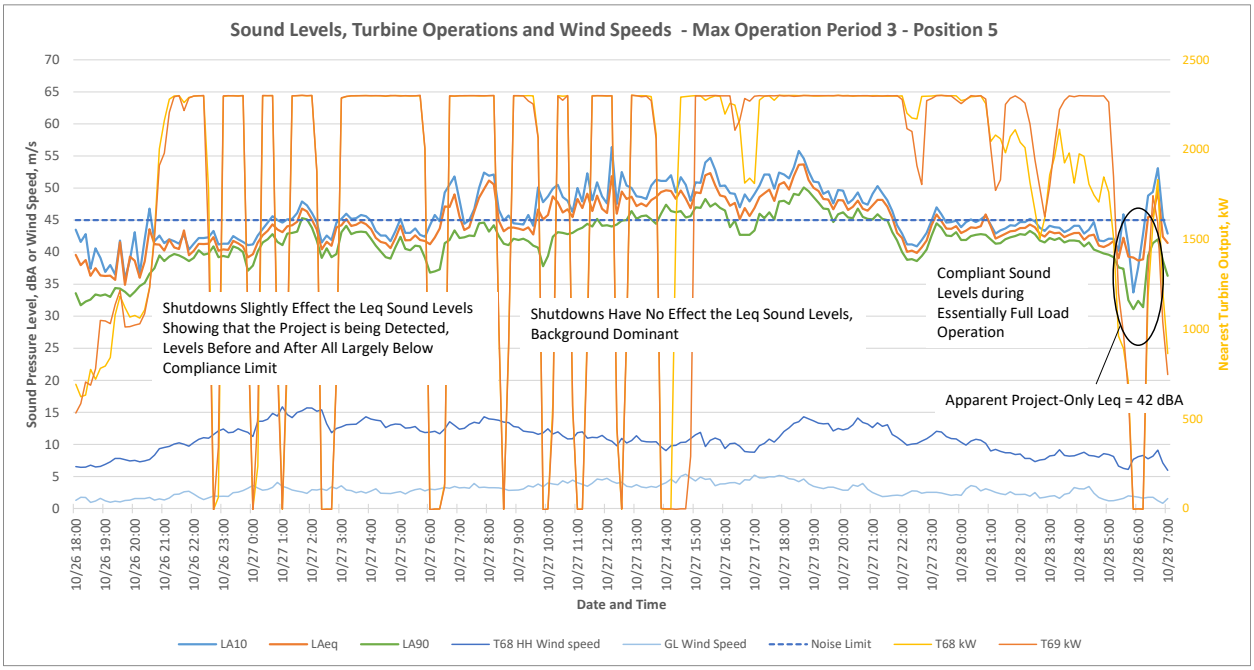

Figure 2.5.3

At the end of this period the total Leq sound level is below 45 dBA and the final shutdown at 6 a.m. on 10/28 suggests an apparent project-only level of 42 dBA.

As with the previous test positions, the final two high wind periods (Figures 2.5.4 and 2.5.5) show that background noise was dominant and that the project level was only a minor component of the overall sound level. These plots suggest that the project was not over applicable noise limit.

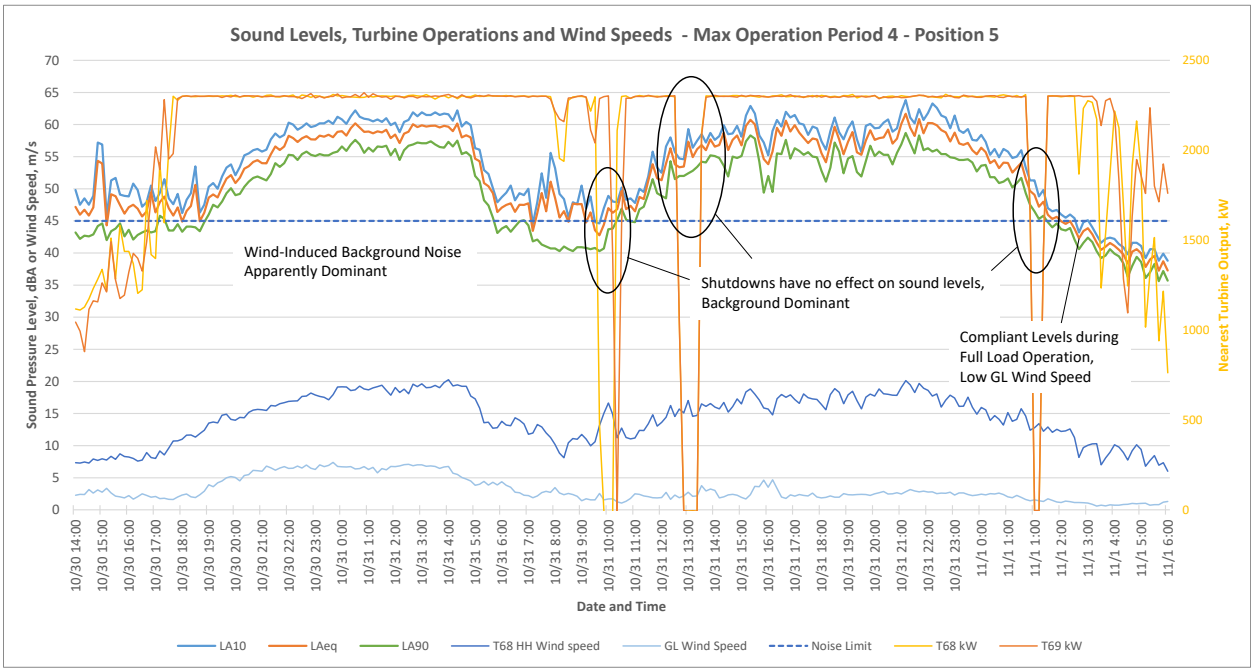

Figure 2.5.4

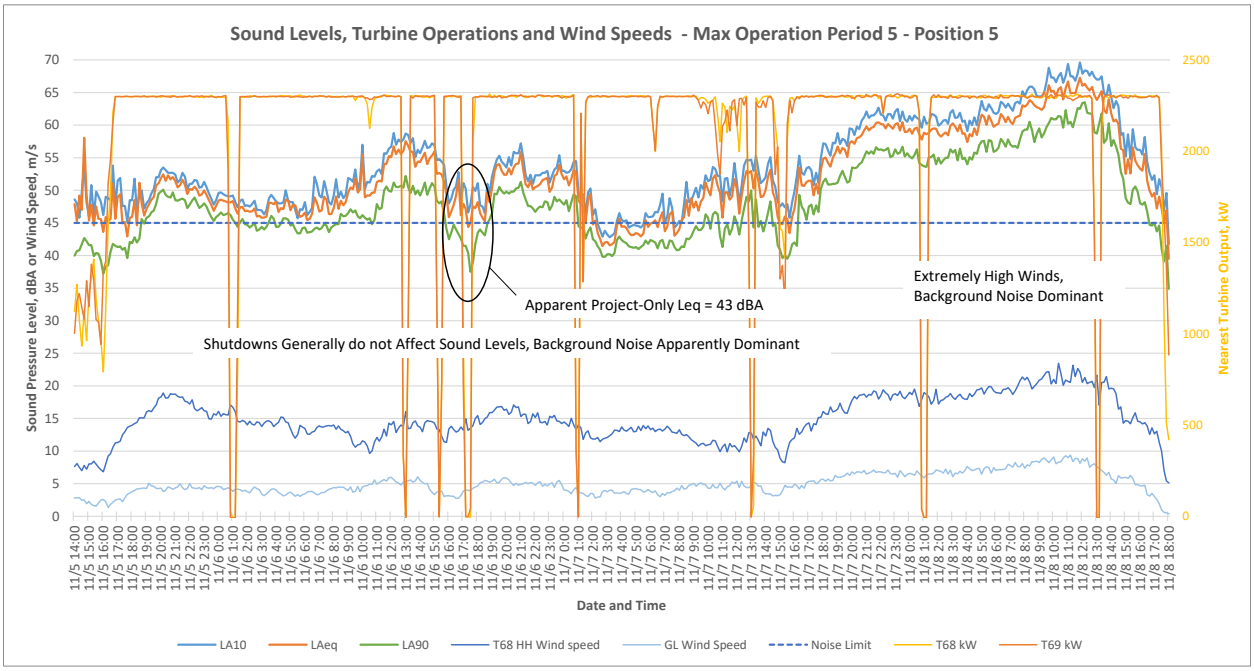

Figure 2.5.5

2.6 Position 6 – Non-Participating Residence, 50 dBA Property Line Limit

The overall results for Position 6 are plotted below.

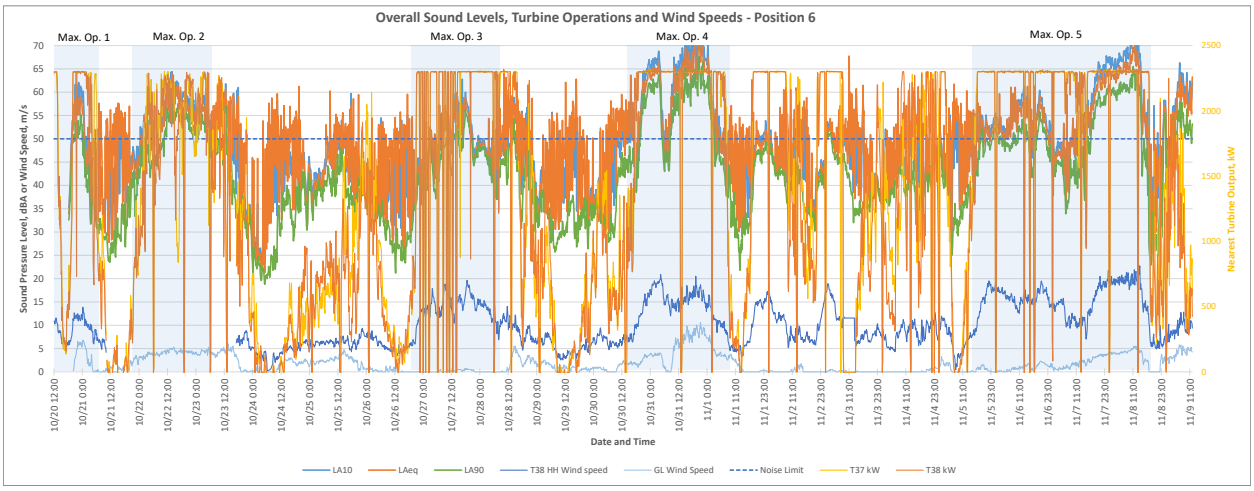

Figure 2.6.1

An enlargement of the first period of full operation (Figure 2.6.2) shows that background noise apparently becomes dominant when the ground level wind speed approaches or exceeds the 5 m/s data validity threshold laid out in the test protocol. The ostensibly non-compliant sound levels in the high 50's dBA during full load operation do not appear to be associated with the project, since the near shutdown of the nearest turbine (T38) at 9:30 p.m. on 10/20 has no effect at all on the observed sound levels. It should be noted that this test position on the northern property line of the parcel is unavoidably adjacent to a wooded buffer that extends along this boundary. Consequently, significant wind-induced noise from tree rustle generally occurs every time it is windy.

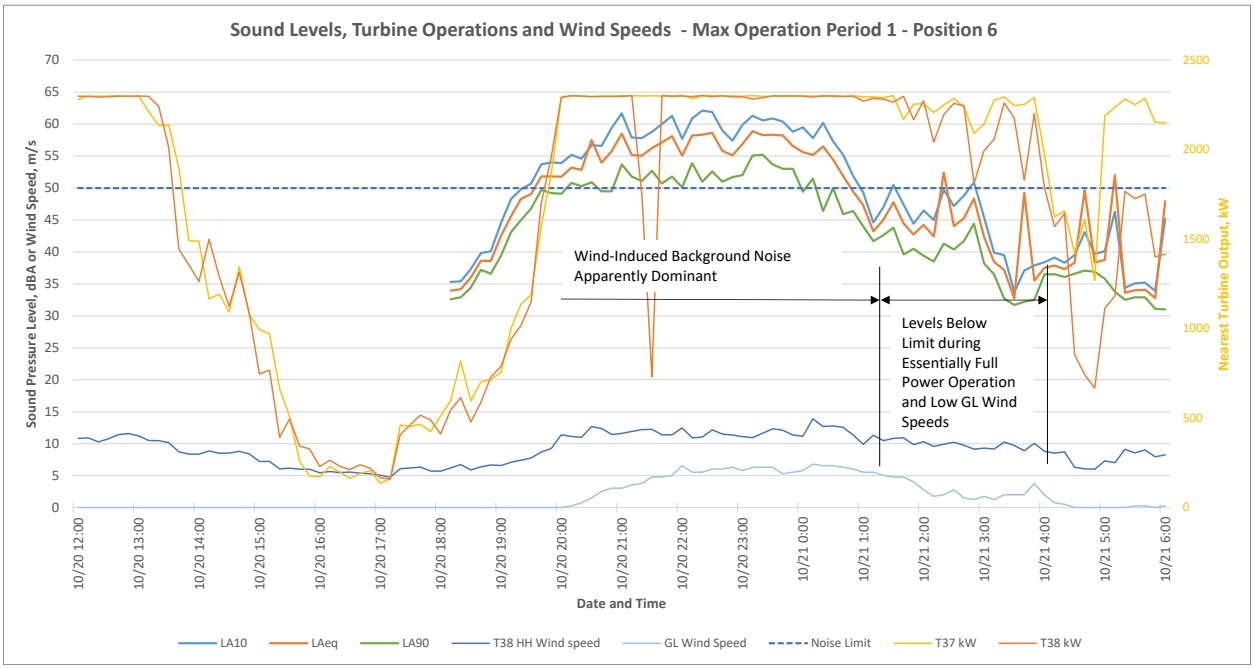

Figure 2.6.2

Just after 1 a.m. on 10/21 ground level wind speeds below 5 m/s bring about lower and definitely compliant sound levels that oscillate around 45 dBA and go as low as 34 dBA while the project is still operating at essentially full power.

The second windy period is plotted below.

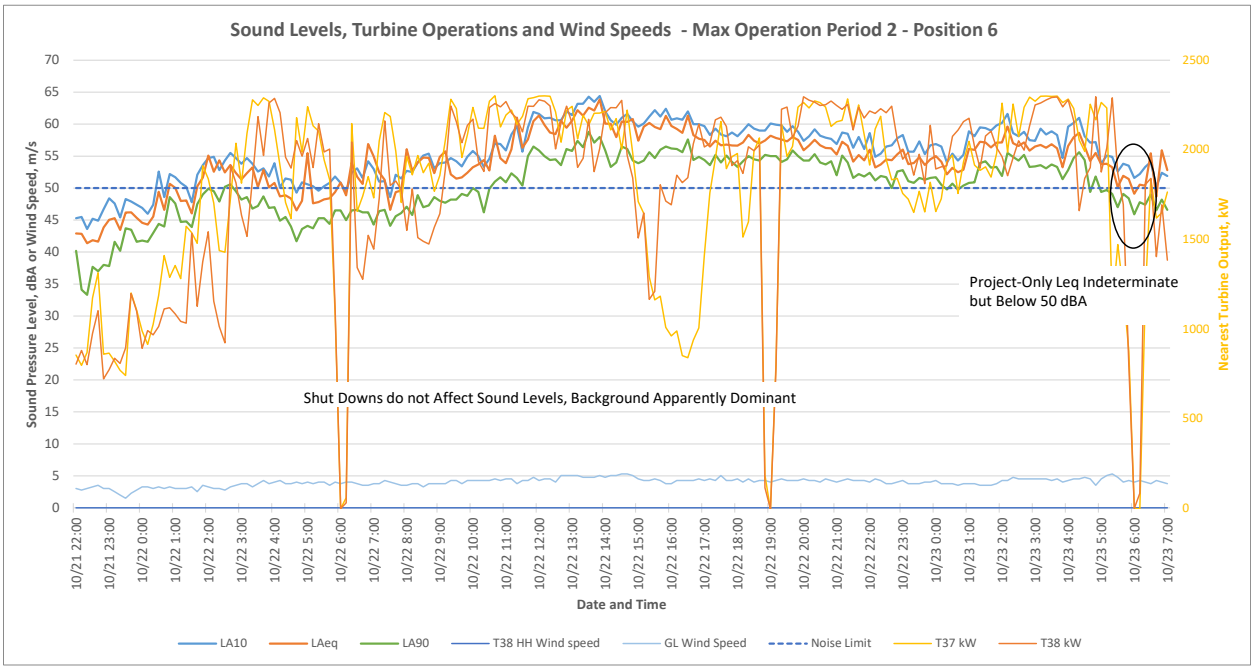

Figure 2.6.3

The second half of this period was when unusually favorable sound propagation conditions existed based on the results at most other positions where the shutdowns clearly and unequivocally demonstrated the dominance of project noise. In this instance, the sound levels through all of the shutdowns are either mostly or completely unaffected by the temporary absence of the project indicating that local background noise was dominant and that the project's sound emissions were essentially inconsequential, if not completely inaudible. There is a minor downward blip in sound levels during the third shutdown, which could well be coincidental; however, if this dip is assumed to be due to the project shutdown it would indicate that the project component of the total sound level was somewhere below 50 dBA (the on/off differential is too small and uncertain to make a valid mathematical calculation). If the project's sound emissions were essentially undetectable during this period of favorable propagation conditions and low ground level wind speeds, it can generally be concluded that project noise is typically buried in the natural environmental sound level at this location and certainly below the fairly high 50 dBA property line noise standard. Indeed, the data from the remaining periods of windy conditions and maximum turbine output, plotted below in Figures 2.6.4, 2.6.5 and 2.6.6, support this conclusion in that none of the many shutdowns resulted in any change or reduction in the overall sound level.

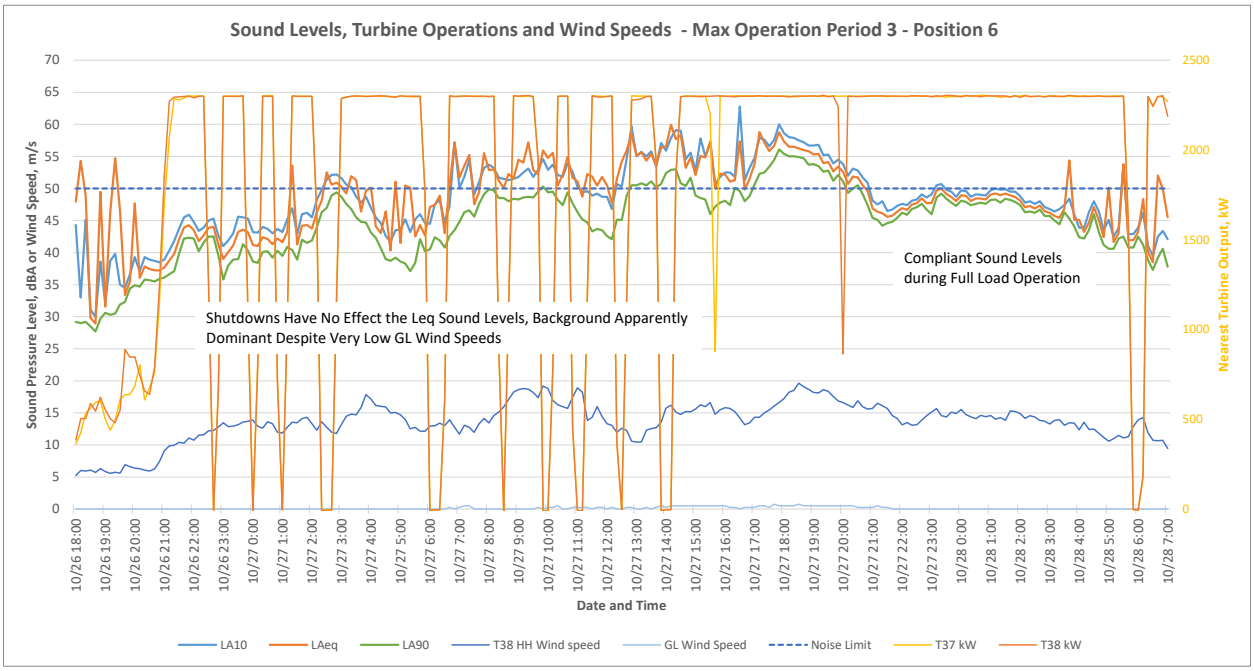

Figure 2.6.4

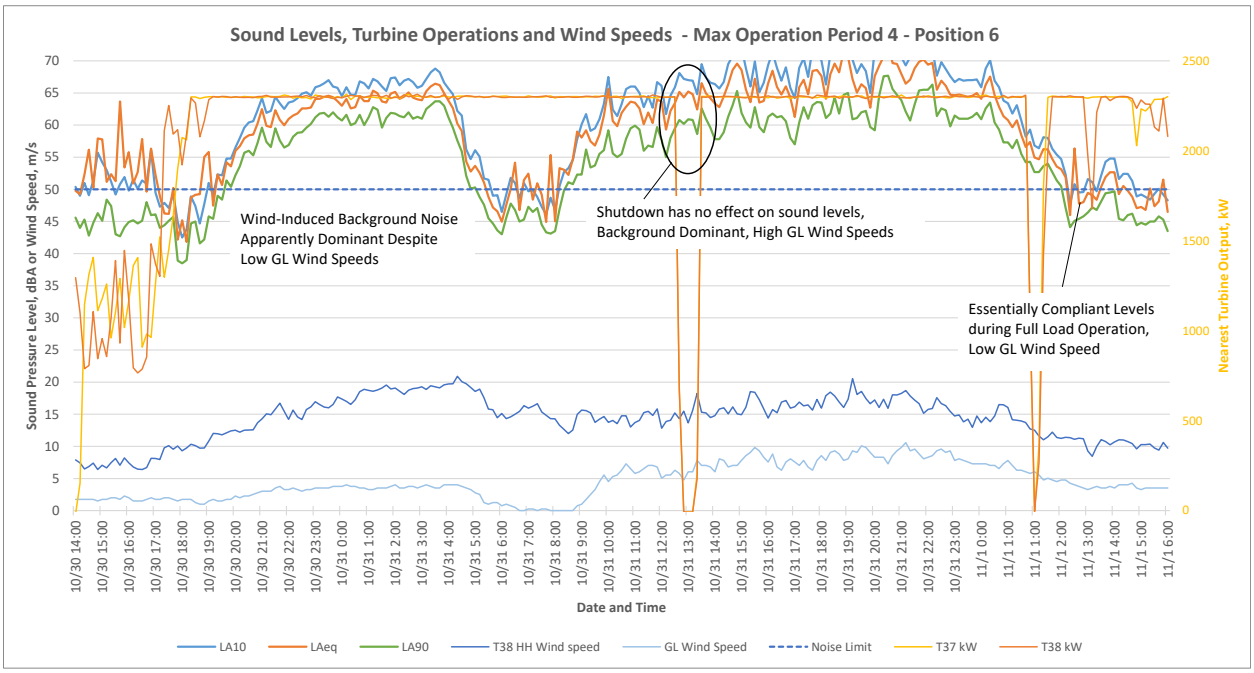

Figure 2.6.5

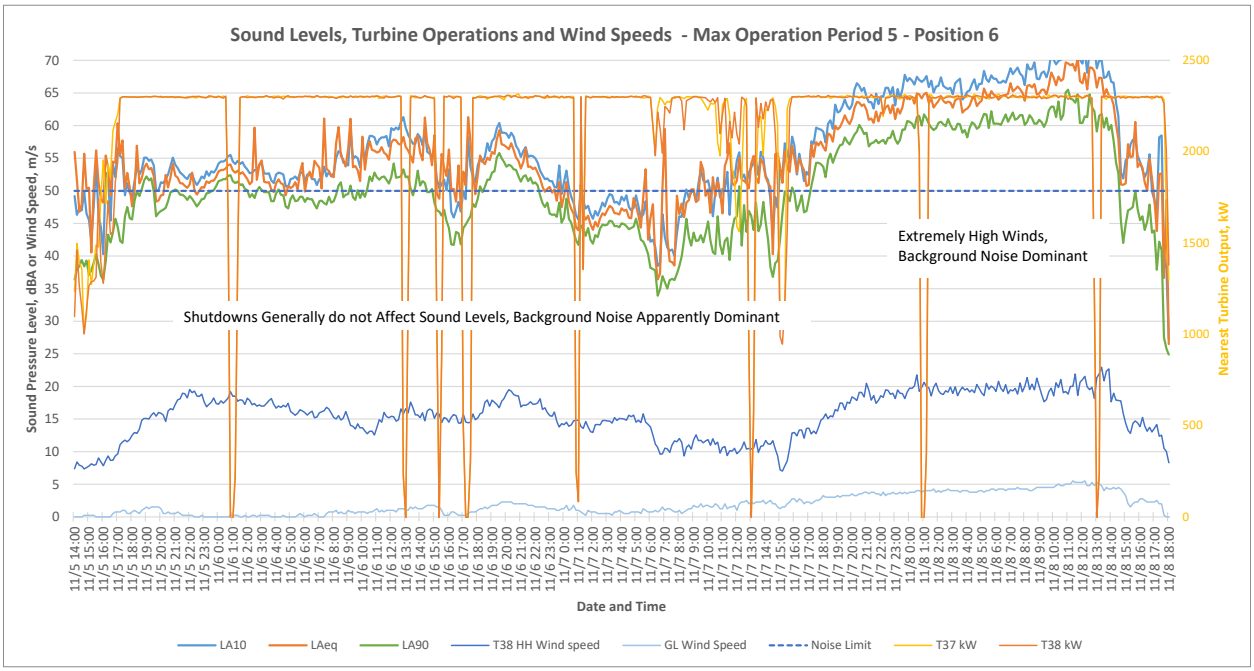

Figure 2.6.6

Although Leq sound levels as high as 70 dBA were measured during these windy periods, the many temporary shutdowns that were implemented through the survey demonstrate that these sound levels generally have nothing to do with the project and would exist whether the project were present or not.

3.0 Epsilon Report

We have reviewed the "Sound Level Compliance Evaluation Report", dated January 15, 2021 prepared by Epsilon Associates, Inc. for Crowned Ridge Wind. In general, we believe that Epsilon did an excellent job in carrying out the survey in the face of the pandemic and its attendant problems with travel and logistics.

While we generally agree with the logic employed to analyze the huge amount of data collected over the extended three week test period, the purely numerical approach that was used turned out to be a bit too rigid in setting the data sort conditional parameters, which caused several clear overages to be missed. In particular, the assumption that maximum project noise only occurs during operation at the maximum electrical output of 2300 kW caused the analysis to overlook the period on 10/22 and 10/23 when atmospheric/inversion conditions appear to have strongly favored sound propagation and unusually high and non-compliant project sound levels were prevalent even though the project was only operating in roughly the 1500 to 2200 kW range. The dominance of project noise at Positions 1 through 3 could be clearly discerned from the dramatic dips in sound level during the shutdowns implemented during this period – something that can only be seen in a

graphical rather than numerical analysis. Having said that, the condition specifying that levels would only be evaluated during operation at 2300 kW was pre-determined in the test protocol, so we do not fault Epsilon for carefully following the procedure. This operating condition, in turn, stems from the language of Section 1(e)i of the PUC's Final Decision where it says that the turbines will be evaluated during full power operation or within 1 dBA of the maximum sound power level output.

Apart from the oddity that the highest project sound levels occurred during a time of off-peak power production, we agree with the remainder of the Epsilon analysis where periods meeting all of the wind speed and other parameters were evaluated for compliance with the applicable noise limits. Epsilon's overall conclusion that the project was in compliance during all evaluation periods at all positions is correct and essentially agrees with our independent findings that the project was compliant most of the time or all of the time at all positions

4.0 Conclusions

Our independent analysis of the raw survey data indicates that the sound emissions from the Crowned Ridge Wind Project are essentially compliant with the noise limits contained in the permit conditions, which agrees with the overall conclusion of the Epsilon Associates study carried out on behalf of the project. However, by looking at the data from a graphical, level vs. time perspective rather than the purely mathematical, data sort approach employed by Epsilon, we found instances where the project sound level unequivocally exceeded the applicable limit at three of the six test locations. More specifically, the wind gradient and general atmospheric conditions appear to have been highly conducive to the propagation of project sound during the 17 hour period from about 1 p.m. on 10/22/20 until about 6 a.m. on 10/23/20 and it can be concluded with considerable certainty from the behavior of the measured sound levels through the shutdowns that occurred during this period, and from a review of audio files before, during and after these shutdowns, that the Leq(10 min) sound levels measured 1 to 5 dBA above the permitted limits where driven by the project rather than background sound. This period was overlooked in the Epsilon analysis because the turbines were not operating at their absolute top power output of 2300 kW (one of the key data sort filters) but rather around 2200 kW or lower. These overages were observed at Positions 1, 2 and 3 only during this particular time period. During the remainder of the survey at those test locations and throughout the entire survey at Positions 4 through 6 there is no evidence of non-compliance and, in fact, every reason to believe the project's sound emissions are below the applicable maxima. Because the overages occurred only once at only three of the six test positions during this unusually long three week survey period and because wind turbine noise is unavoidably variable with changing atmospheric conditions, we would conclude that the project has been appropriately designed and is meeting, in good faith, the intent of the permit noise limits. In essence, our analysis indicates that the project sound level was compliant with the stipulated noise limits at Positions 1-3 for 96% of survey period and for 100% at the remaining positions.